Technology Review

Edited at the Massachusetts Institute of Technology

March, 1963

Fluid Dynamics Demonstration, Page 24



Mr. Webster's *Who's Who*, By B. A. Thresher, Page 13

technology
review
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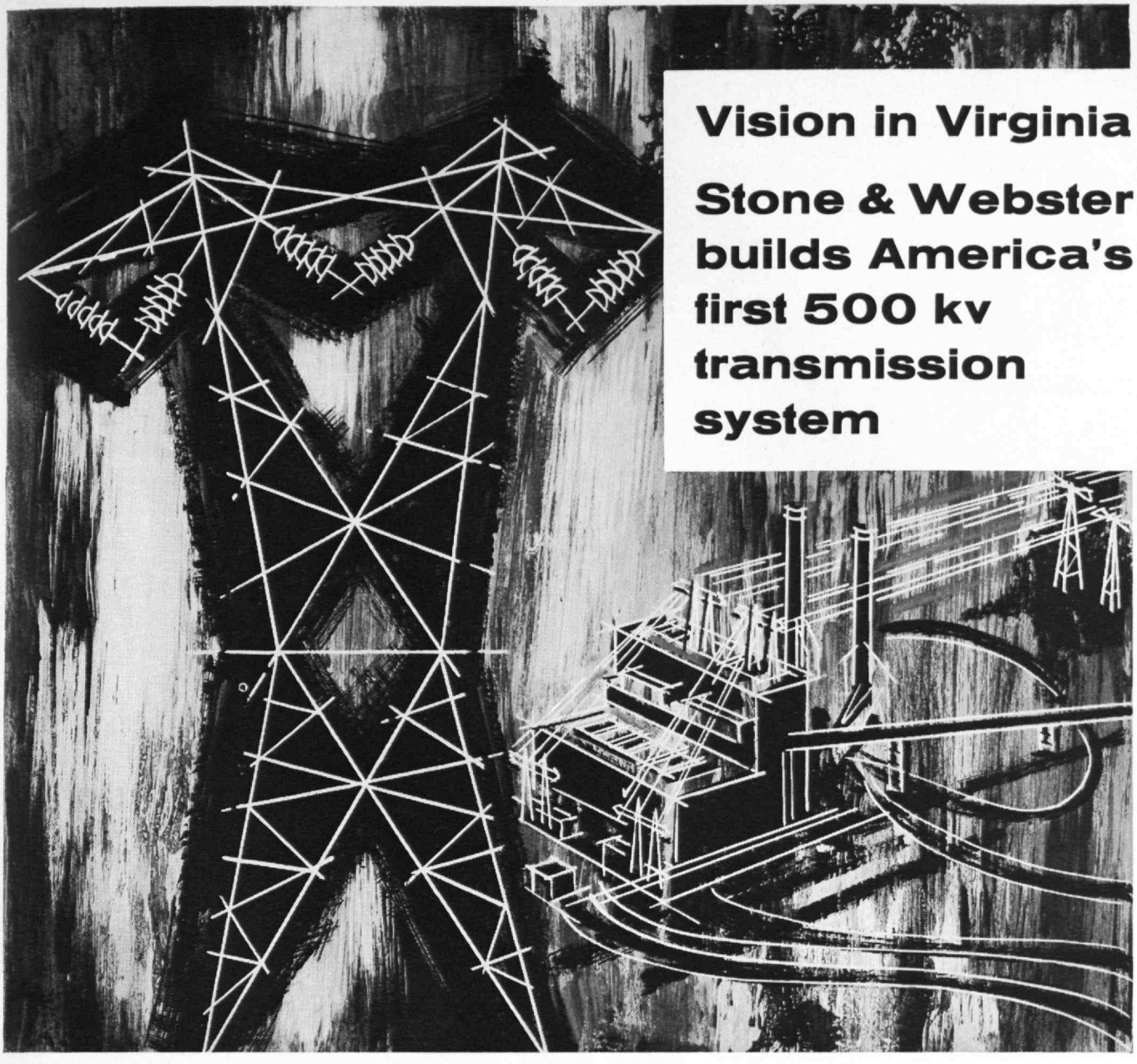
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Contributing to the system's overall economy will be some 1800 maintenance-free towers of uncoated corrosion-resistant steel. Most of the 500 Kv equipment will be of design and construction never before used for commercial transmission in this country.

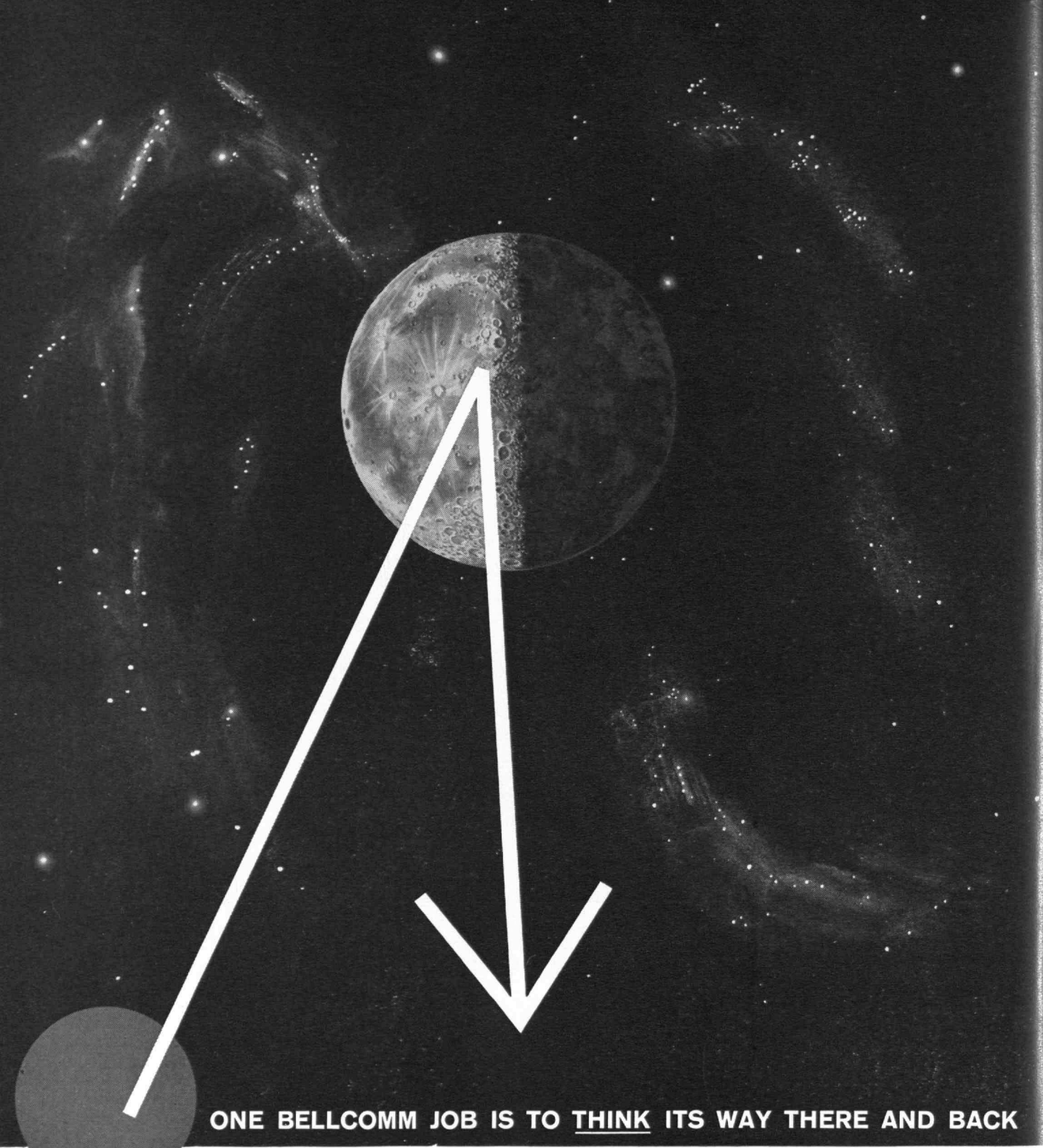
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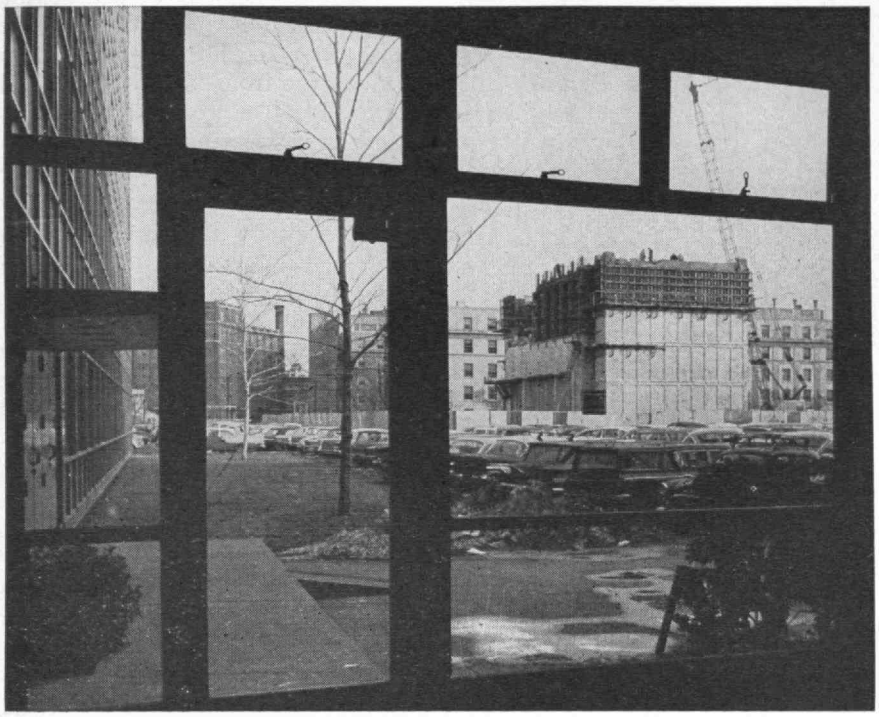
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Edited at the Massachusetts Institute of Technology
Volume 65, Number 5

Technology Review

Reg. U.S. Pat. Off.



FROM THE ENTRY to the Dorrance Building, Bob Lyon took this picture of the new Center for the Earth Sciences rising at M.I.T. Another view of it and pictures of other buildings under construction this winter are on page 29.

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The Review's publisher and editor is *Volta Torrey;* business manager, *R. T. Jope, '28;* assistant to the editor, *Ruth King;* and class news editor, *Roberta A. Clark.* Editorial consultants are *J. J. Rowlands, Francis E. Wylie,* and *John I. Mattill.* Members of its staff are *Madeline R. McCormick, Patricia Fletcher,* and *Maxine Kenny.*

Officers of the Alumni Association of M.I.T. are: *William L. Taggart, Jr., '27,* President; *Donald P. Severance, '38,* Executive Vice-president; *Carroll L. Wilson, '32,* and *F. Leroy Foster, '25,* Vice-presidents; and *Frederick G. Lehmann, '51,* Secretary.

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Contents March, 1963

The cover picture by Bob Lyon of the M.I.T. Photo Service is not an example of high-speed photography. The ball shown is motionless. This picture is explained in The Trend of Affairs, which also does include a recent example of Professor Edgerton's work (see pages 20 and 24).

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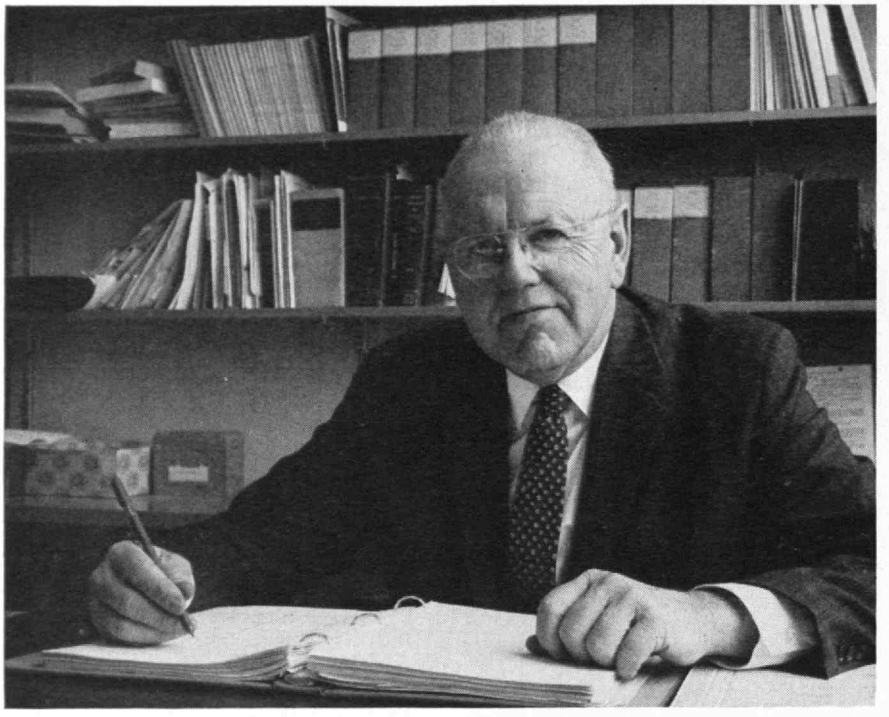
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Individuals Noteworthy



Professor Huntress at the desk in the Graduate School office he has left.

In the Graduate School

PROFESSOR ERNEST H. HUNTRESS, '20, retired last month as Secretary of the Graduate School at M.I.T., and Professor Sanborn C. Brown, '44, was appointed Associate Dean of the School to assist Dean Harold L. Hazen, '24.

Professor Huntress received his doctorate from the Institute in 1927, became an assistant professor in 1929, associate professor of organic chemistry in 1935, and professor in 1941. He was chairman of the Graduate Committee of the Department of Chemistry for 11 years, deputy dean of the Graduate School from 1950 to 1952, director of the Summer Session from then until 1956, and became secretary of the Graduate School in 1953.

Professor Huntress had worked in M.I.T.'s Cambridge buildings ever since they were completed in 1916. His research developed the idea of using chemicals which fluoresce in ultraviolet light in invisible ink for laundry marks, and he was the author of more than 100 technical papers and five books.

Professor Brown came to M.I.T. from Dartmouth, became an assistant professor in 1945, an associate professor in 1949, and professor in 1962. He has been especially interested in plasma physics, and will continue his teaching and research in the Department of Physics. He is also noted among historians for his study of the life of Count Rumford, Eighteenth Century physicist.

"Graduate School enrollment has doubled in the past decade," Provost Charles H. Townes pointed out, in announcing these changes. "Even more significant is the emergence of new doctoral programs in all five schools and of new interdepartmental research centers and graduate programs. Interrelations between M.I.T. and sister graduate schools, governmental agencies, and industry grow in number and complexity, as do programs of graduate student subsidy. These and other matters, such as the planning for a proposed center for graduate students, require increasing thought and effort to assure that we exploit their potential contributions to the strength of our graduate programs."

F. J. Chesterman: 1884-1963

A LIFE MEMBER of the M.I.T. Corporation and former President of the Alumni Association, Francis J. Chesterman, '05, died on January 21 in Philadelphia.

A native of Taunton, Mass., Mr. Chesterman began his professional career with the American Telephone and Telegraph Company in Boston, and rose to the presidency of the Bell Telephone Company of Pennsylvania. He retired in 1949 after 44 years of service as an engineer and administrator.

For more than three decades he also was active in M.I.T. work. He was vice-president of the Alumni Association from 1929 to 1931 and its president in 1943-1944. He became a term member of the Corporation in 1931, and a life member in 1938, and was active on that body until his death. He also served on Visiting Committees for five different M.I.T. departments.

In Philadelphia, especially, Mr. Chesterman was noted for his civic activities. He was a member of the American Engineering Council and many committees and study commissions. He also had been a director of the Public Charities Association, the Fidelity-Philadelphia Trust Company, the Philadelphia Divinity School, Chesterman-Leeland Company, National Vulcanized Fibre Company, Industrial Finance & Investment Company, Pittsburgh Butler Airport, Inc., Strip Tin Plate Company, and the First Federal Savings & Loan Association of Philadelphia.

He is survived by his wife, the former May White; a daughter, Mrs. Elizabeth Deitrick of Bronxville, N.Y., and a son, John F. Chesterman, '34, of Red Bank, N.J.

Eminent in Metallurgy

THE FIRST 10 men elected to the newly established grade of Fellow of The Metallurgical Society of the American Institute of Mining, Metallurgical, and Petroleum Engineers included Professor *John Chipman,* recently retired Head of the M.I.T. Department of Metallurgy, and four Alumni: Professors *Cyril Stanley Smith, '26,* and *Morris Cohen, '33,* of M.I.T.; *Augustus B. Kinzel, '21,* of the Union Carbide Corporation; and *Reinhardt Schuhmann, Jr., '38,* of Purdue University.

(*Continued on page 8*)



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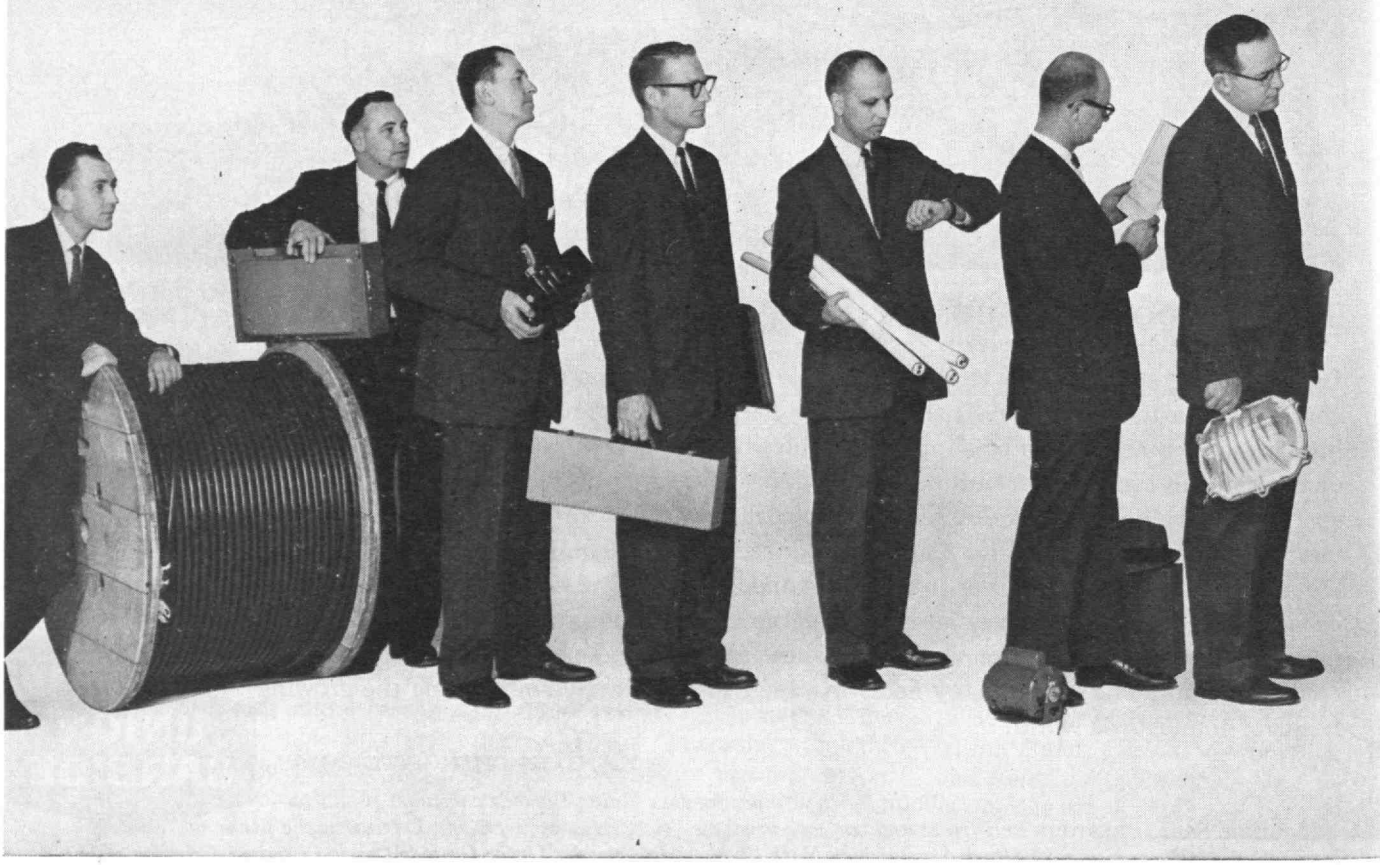
In this battery-sparked new world of portable convenience, hand tools are driven by their own rechargeable batteries . . . toys perform their tricks by remote control . . . a hearing aid with its button-size power cell can be slipped into the ear . . . cordless radios and television sets are lively companions in the home or outdoors . . . missiles and satellites are guided through the vastness of space. ▶ Developments like these have brought more than 350 types of EVEREADY batteries into use today, 73 years after Union Carbide produced the first commercial dry cell. Ever-longer service life and smaller size with power to spare are opening the way for batteries, such as the new alkaline cells, to serve hundreds of new uses. ▶ For the future, along with their research in batteries, the people of Union Carbide are working on new and unusual power systems, including fuel cells. And this is only one of the many fields in which they are active in meeting the growing needs of tomorrow's world.

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Individuals Noteworthy

(*Continued from page 4*)

J. Edward Nugent: 1914-1963

THE NEWMAN CHAPLAIN at M.I.T. for 13 years, the Reverend J. Edward Nugent died in Boston on January 23 and after services at St. Ann's Church was buried in Baltimore, Md.

Father Nugent was born in East Orange, N.J., attended Villanova University, and entered the Paulist Fathers seminary in Washington in 1933. He was ordained by Francis Cardinal Spellman in 1942. After serving as Newman Chaplain at the University of California at Berkeley, he went to Old St. Mary's parish in Chicago in 1945. He was transferred in 1948 to the staff of *Catholic World* in New York, and was correspondent for the Holy Year in 1950.

He then became Newman Chaplain at M.I.T., and in 1953 was appointed director of the Newman Clubs of the Archdiocese of Boston. He was named pastor at St. Ann's Church in 1961. He also served as Catholic Chaplain at the Harvard Law School, Wellesley College, and Garland Junior College.

He is survived by his mother, Mrs. Helen Nugent of South Orange, N.J., and two brothers.

(*Continued on page 44*)

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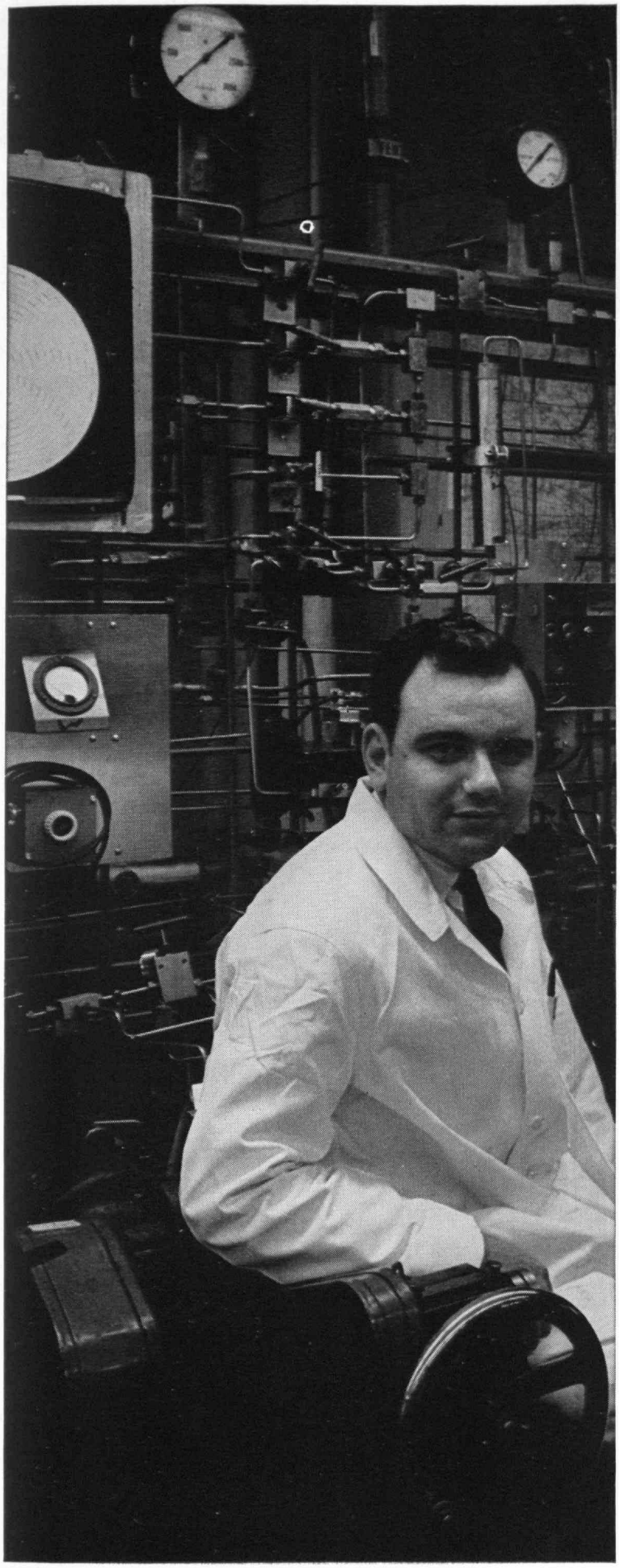
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by Jim Koller

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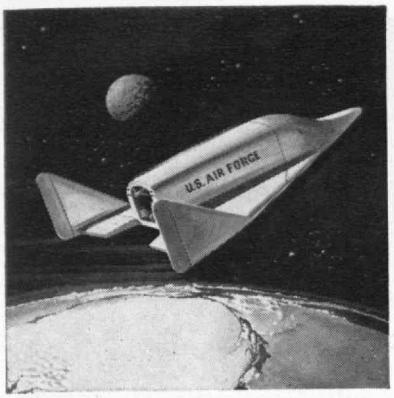
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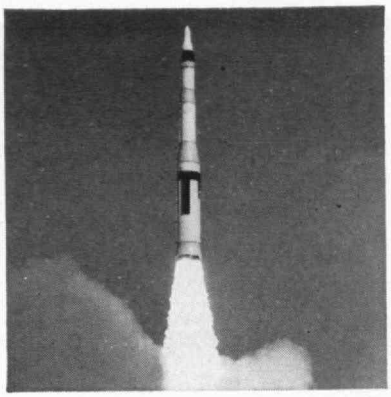
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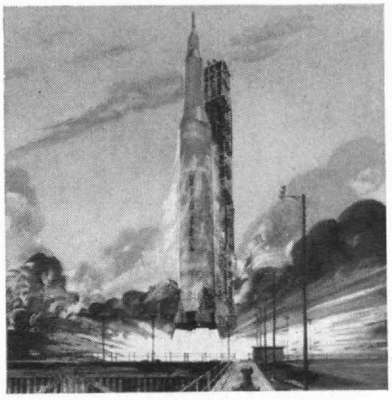
System integration: MINUTEMAN



Boeing 707 with Boeing-Vertol 107



New Boeing 727 short-range jetliner



Space booster development: SATURN S-1C



Boeing turbines power helicopters



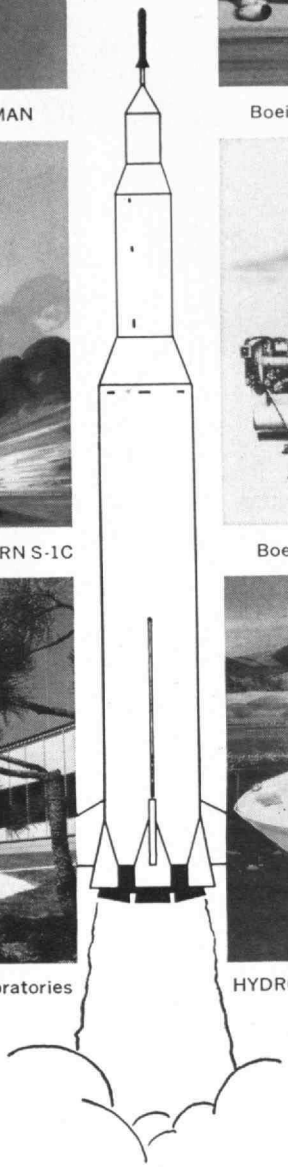
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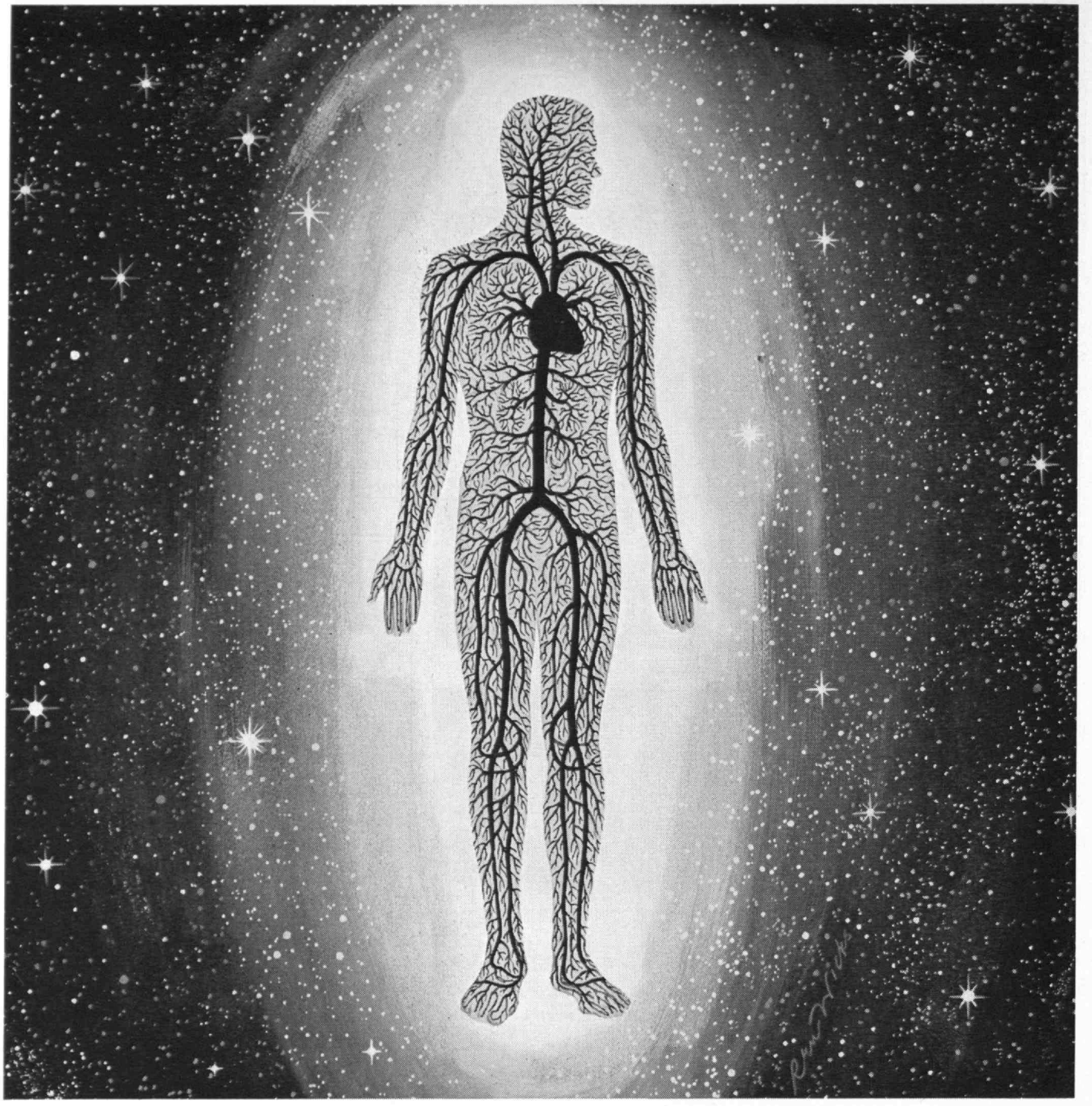


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Mr. Webster's "Who's Who"

Science has carried many people's names into the dictionary, and the newest edition shows Roentgen is far ahead in the race for entries

BY B. ALDEN THRESHER, '20
Former Director of Admissions, M.I.T.

A TRUE DICTIONARY has no place for proper names: the editors are strict about this. It deals with the generic vocabulary and the only nouns allowed are common nouns. Yet the dictionary is full of people—thousands of them. It is curious that people who write about dictionaries pay little attention to this.

Although the new Webster Third International Dictionary* has recently been much discussed, few seem to have considered its merits as a kind of Who's Who of the human race, very select, on a pretty chancy, yet not wholly haphazard basis. To gain admission, a surname has to be transformed into a generic term, or an adjective, or even a verb, before it assumes that degree of generality that entitles it to a place in the language.

It is a paradox that the procedures of science, with their tendencies toward abstraction and impersonality, have brought into the language the names of thousands of men (and a few women). Literature and the arts, wedded as they must be to the unique, the particular in time and place, and the personal, have nevertheless deposited in the language very few surnames compared with the multitude that have come from scientists, and to a less extent from engineers, architects, inventors, and artificers. "All trades, their gear and tackle and trim" have left a large residue of name-words. On the other hand, the names that persist in the arts and literature, immortal though they may be, survive for the most part simply as names, not as working parts of the language.



Why should this be? Is it not because the regularities of scientific classification and theory disclose true uniformities often hidden under surface differences? Some of these can be tagged with abstract concepts like elasticity or gravitation, but the supply of such terms soon runs out. When it comes to species in vast numbers, or compounds, one must fall back on other labels. The elaborate structural nomenclature of organic chemistry is one answer, and the Latin terminology for living species in all its terse orderliness is another.

But there may be a deeper reason. Since the essence of science is discovery, the identity of the worker at the cutting edge of investigation is associated with the universal replicability of the phenomenon under given conditions. This may be the genetic replication that maintains the identity of species, or the replicability of controlled experiment. In literature and the arts, by contrast, each separate work is unique and, hopefully, creative. But since the essence of creativity in these

*The new dictionary was criticized by Wilson Follett in *The Atlantic* for February, 1962, and defended by Bergen Evans in *The Atlantic* for May, 1962.



PROFESSOR EMERITUS B. Alden Thresher, '20, is nationally noted as an authority on admission to college, and has often contributed to The Review. When given a copy of the much discussed new edition of the dictionary last year, he found himself intrigued by the ways in which proper names have become part of the English language.

modalities lies in uniqueness and differentiation, the unifying bond is less strong. So the names of artists and writers only rarely grow into parts of speech.

The vast majority of personal names that have found their way into the dictionary are attached to individual species of mammals, reptiles, birds, plants, fishes, and fossils, or to minerals and other chemical compounds. There must be thousands of these, from Darwin's frog to MacGillivray's warbler, from the yellow blossoms of the Forsythia to the towering Copernicia palm, and from dopplerite to millerite.



Most such names hark back to the scientist who first discovered or described the species. But there are odd exceptions such as the martin, a bird probably named after Saint Martin, Fourth Century Bishop of Tours, because these birds migrate around Martinmas—or St. Peter's fish, which harks back to legend. Language is full of such haphazard contingencies, both within and without the realm of science. Charles Lynch and Charles Boycott long ago secured a place as transitive verbs, and Joseph Ignace Guillotin as a grisly noun, while Julius Caesar got his name attached to an obstetrical operation on the strength of a mere legend about his birth. Consider, too, the sad case of Otto von Guericke who managed to retain his place in the 1923 Webster with the adjective Guerickian, but disappears from the new edition. To be sure, those hemispheres of his are still listed under Magdeburg, his home town, but this is somewhat as if Newton's law were to be dubbed the Woolsthorpe principle.

Among Those Missing

In a few cases the editors have unaccountably dropped scientific landmarks from the new edition. In 1923, Jean Foucault was accorded entries for his *current, prism,* and *experiment* (presumably the pendulum). In the new edition, his name is transmitted only through an *eddy current.*

Niels Henrik Abel was generously treated in 1923 with listings for the Abelian *equation, function, group,* and *integral,* as well as Abel's *theorem,* there described as "of far-reaching importance." Will not mathematicians raise their eyebrows to find that he has wholly disappeared from the new edition, although Sir Frederick Abel, English chemist, remains, with his *test* and his explosive, *abelite,* and although Clarke Abel, English botanist (who died in 1826), now makes a very late appearance with his shrub, *abelia?*

With better reason the editors have eliminated Mr. Corliss, whose *engine* and *valve,* though obsolescent in technology, were still a vestigial part of the language in 1923; gone too are de Laval with his turbine and Maxim with his gun. Döbereiner's *alloy* and *lamp* have disappeared, as has John Ericsson's hot air *cycle,* with no great loss to the general reader. Encke's and Halley's comets, present in 1923, are gone. Since named comets are unique objects, not genera, their disappearance can be attributed to the elimination of encyclopedia entries. Halley's *method* remains. Clearly this is no editorial slip, but rather relentless editorial logic.

An unregretted riddance is the transitive verb "to M'Naught"; this relic of nineteenth-century engineering preserved, as in amber, the name of a Scottish engineer; it means "to increase the power (of a single cylinder beam engine) by adding a small, high-pressure cylinder with a piston acting on the beam between the cylinder and the flywheel end, using high-pressure steam and working as a compound engine." Such a marvel of semantic specificity, besides referring to a technology as obsolete as the dodo, is out of place in a language whose verbs are normally quite general in meaning, gaining their specificity by the use of modifiers.

Sophus Lie's *line co-ordinate,* and the *principle* of Soret (in physical chemistry) have gone since 1923, as have Maclaurin's *series* and *theorem.* M.I.T. people will regret this last exclusion, which referred to Colin Maclaurin (1698-1746), Scottish mathematician and probably the progenitor of Richard C. Maclaurin. Maria Agnesi, the eighteenth century Italian mathematician whose curve "the witch" has long adorned textbooks on analytical geometry, was also banished in 1961. She had hung on in 1923, but only under the entry *witch,* instead of her proper name; so fame, as it fades, can be unkind. Olbers' *hypothesis* on the origin of asteroids (as well as his comet) have gone since 1923, perhaps with reason; but even the casual reader of popular astronomy will wonder why Olbers' *paradox* concerning the total illumination of the heavens does not appear in the third edition.

A really serious omission in the new edition is Gödel's *proof* which, when published in 1931, unsettled the very foundation of mathematical logic; the intelligent general reader is likely to hear more rather than less about it in the coming years. In lighter vein, we find no mention of Parkinson's *law;* surely this has become common coin of our speech in the organization age. We do, of course find *Parkinsonia* (a plant), and Parkinson's *disease,* immediately following *parking brake, parking light,* and *parking meter.* It is significant that *parking* in the sense of leaving a vehicle, was not even listed in 1923, but is now defined, with a certain wry humor, as "leaving a vehicle in an *accessible* place." Parking *orbit* apparently came into general use too late even for the 1961 edition.

The omissions of surname words pointed out above may result from a tendency for scholars immersed in the world of words, saturated with literary usages and tradition, to lag in their awareness of new accretions of scientific knowledge and terminology. But scientists do this, too, with reference to fields outside their own, and even with outrageous innovations in their own fields.

For example, the towers in the Great Court at M.I.T. are inscribed with an honor roll of great scientists. Einstein is not included, though his paper on general relativity was published in 1906, while the M.I.T. inscriptions, completed in 1916, were planned only a year or two earlier by two distinguished historians of science, Harry W. Tyler, '84, a mathematician, and William T. Sedgwick, a biologist. Yet the omission is not strange,

considering that it was only after World War I that even physicists became generally aware of Einstein's work; its experimental confirmation came still later.

Among the Newcomers

We can make a few spot readings on the extent of this lag by looking at name entries that appear in the new Webster but not in the 1923 edition. For example Abegg's *rule* (of chemical valence) due to Richard Abegg, who died in 1910, did not appear in the 1923 edition, but did in 1961. It is even more surprising that Rudolf Diesel, who died in 1913, was given no entry in 1923; he has 10 in 1961.

Though 1923 was obviously too early to pick up Compton or Gamow or Fermi, all of whom had penetrated into the language by 1961, it is surprising that the FitzGerald *contraction* did not appear in the 1923 edition, seeing that FitzGerald had died in 1901. The Van Allen *radiation belt* made the 1961 edition by a narrow margin.

The late Professor Arthur E. Kennelly (of M.I.T. and Harvard), who with Oliver Heaviside got his name attached to the ionized layer in the upper atmosphere, did his work too late for the 1923 edition, but appears in the later one. Herman Hollerith, nineteenth century inventor of the punched card, missed the 1923 edition where he properly belonged, and now appears in the latest at a time when his name is nearly forgotten; most people think his invention was made by Mr. IBM. Such lags and delays, however, are not confined to science, since even Stetson as the name of a hat did not appear in 1923, but is present in 1961.



The inveterate human tendency to personalize the impersonal is illustrated in the names of the chemical elements. Of the 102 elements listed in the Third Webster, including the transuranic, no less than 20 are named directly or indirectly after persons, real or imaginary. Four of them, curium, einsteinium, fermium, and mendelevium bear the names of scientists, and nobelium is of course named for Alfred Nobel. Two, americium and berkelium, are named for places which, in turn, were originally named for men, while samarium is so called from samarskite, a mineral in which it occurs, bearing the name of Colonel von Samarski, a nineteenth century mine official.

The Birds' Names

Surnames attached to living species, fossils, and minerals in the Webster Third are far too numerous to list or describe. Each one, dealing as it does with a single species, represents in one sense the lowest round in the ladder of personal nomenclature. Yet each embodies an impressive degree of generality, since each individual of the species perpetuates, with only minor variations, a pattern replicated in millions of organisms. So each seems, at least in our fanciful human conception, to perpetuate the name of the discoverer. Though Adam gave names to the creatures in the Garden of Eden, the processes of life continue in sublime disregard of our terminology. Yet we have a deep need to cast over this Heraclitean flux of nature the imponderable coordinates of our measurements and our labels.

We can make a spot check of a small sample of the naming process as reflected in Webster by looking at Forbush's authoritative *Birds of Massachusetts and Other New England States*. This work lists 41 species (using the common, not the scientific names) named after ornithologists, from Baird's sandpiper to Wilson's thrush. Incidentally, the relative newness of scientific ornithology is illustrated by Alexander Wilson (1766-1813), the only ornithologist whose name appears more than once in this list (Wilson's *warbler, petrel, snipe, tern,* and *thrush*). These birds had been around for a long time in plain sight. How incurious and preoccupied the human race has been, that it waited so many centuries for Wilson and others like him to describe and classify them definitively.

Of the 41 "name" species listed by Forbush, only four appear to be missing from Webster's Third: Brewster's warbler, Cory's shearwater, Henslow's sparrow, and McCown's longspur. (The Peabody bird does not count as a "name" species; it just *says* "Peabody.") One can deduce that these are really missing from the fact that Forbush lists no alternative common names for them. There are so many dialect and regional variants on common names of birds that a non-ornithologist needs to tread warily. He may not realize that Maynard's sparrow and the Ipswich sparrow are one and the same bird, or that the Caspian tern, which Webster does list, is indeed the Cove's Caspian tern of Forbush.

The Muggins Problem

The haphazard manner in which surnames get attached to aspects of the universe follows the halting and irregular pace at which knowledge grows. The universe is full of kinks that turn out to be of great interest and sometimes of great utility. The trick is to recognize and follow an obscure lead. If Muggins, in his laboratory, gets a firm grip on some clue and begins to tease this out of the tangle, who knows what will emerge? It may be only Muggins' tweezers. But again it might be the puzzling Muggins' effect, or Muggins' paradox, or the Muggins' problem (not solved, but at least stated), or even the Muggins' principle in all the grandeur of its generality. There were, after all, clues as to the nature of electricity and magnetism lying in plain sight for thousands of years before Faraday. The last 20 years have shed a new light on Santayana's sinister remark: "Nature is full of coiled springs." We wonder more uneasily than before what Muggins may be getting hold of next.

Aspects of nature bearing human names give us glimpses of the exploration process in a kind of rank order. In the lowest tier are practical gadgets: the Phillips screw, in its classic simplicity, or the Franklin stove with its homely practicality. Of the same type, with varying degrees of complication are such devices as the Bunsen burner, the Pitot tube, the Liebig condenser, the Kjeldahl flask, the Smith-Peterson nail, the

(*Concluded on page 38*)

The Chairman Of the Faculty At M.I.T.



HAROLD S. MICKLEY, '46, was appointed one of five new Ford Professors of Engineering last year and this year is chairman of the M.I.T. Faculty. Recognized internationally for his work in fluid mechanics, heat and mass transfer, he has been at the Institute since 1942 when he arrived to study for his doctorate. Professor Mickley still looks like a graduate student, and a young one at that, despite his responsibilities.

His family has been in the United States for many generations; during the 1890's one of his forebears, a great-aunt, traced the genealogy to Dionysius Micheletus, one of whose descendants was treasurer to Frank King Chlodwig around 536 A.D. Later Mickleys showed up in Vienna as well as France and the family's coat of arms was chartered and confirmed by King Louis XIV and by the German Emperor Leopold. A consortium of Mickley families founded Mickleysville, Pa., and there are now Mickleys in nearly every state of the union.

Harold Mickley's great-great-great-great-great-great-great grandfather was entrusted with the removal of the bells from Philadelphia during the Revolutionary War: They included the Liberty Bell which was cracked, but not by him.

Professor Mickley was born in Seneca Falls, N.Y., in 1918, but left there after the death of his father in a flu epidemic that year, to live in Long Beach, Calif. He received his bachelor's and master's degrees at the California Institute of Technology. He earned part of his tuition there by writing science fiction under pseudonyms, and was sports editor of the *California Tech*.

Professor and Mrs. Mickley now live in Belmont with their two sons, Steven, 17, and Richard, 14. Mrs. Mickley was head of the Payroll Office in M.I.T.'s wartime Radiation Laboratory.

An Interview With Professor Mickley

About his education, his views on engineering education now, and his current responsibilities

BY DAN C. PINCK

WHEN INTERVIEWED at the M.I.T. Faculty Club, Professor Mickley was first asked about his own education at the Institute and spoke as follows:

On my first day in Doc Lewis' class in Industrial Chemistry—in 1942—Doc was talking about oxidation. He pointed to a student in the back of the room and asked a question which the student was unable to answer. I was sitting up front near Doc. Doc then looked in another direction and I thought he was going to ask the student at the other end to answer the question, but the next thing I knew was Doc had hit me on my shoulder and said, "Don't sit there like a bump on a log. Answer the question." I was startled. I said to Doc, "I don't know all the facts, but from what I know of organic chemistry this is what I imagine would happen."

Doc turned to the rest of the class and said, "While Mickley's answer wasn't completely right, he had the sense to give the reasons for the statement he'd made." And Doc said, "When you do this, you're 90 per cent home."

Doc Lewis has been a major influence in your career?

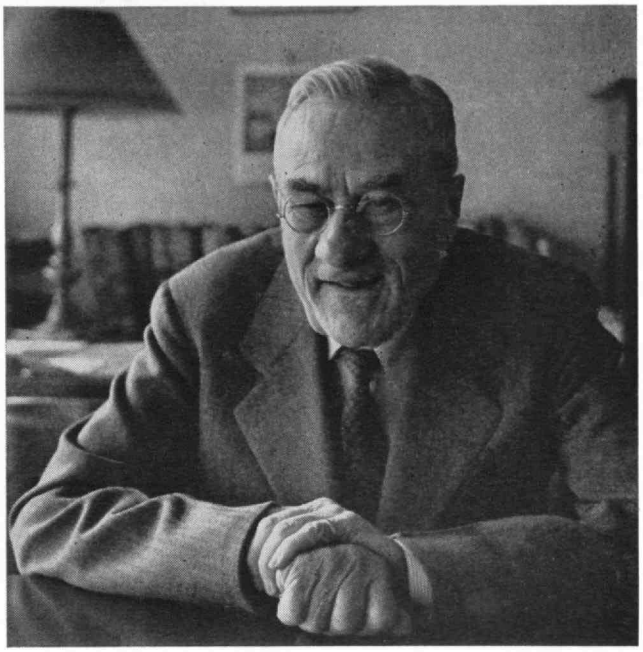
Yes indeed. Doc forced me to use what skills I may have to the fullest. Emerson said that our chief want in life is someone to make us do what we can. In my life, Doc was one of those men.

Exactly how did he do this?

Doc constantly pushed. He would exhort, browbeat, cajole in order to create a desire to do your very best. Of course, I can't emulate him as a teacher, but I do try to bring some of the same spirit which is characteristic of Doc into teaching. I don't believe the subject a teacher expounds is really the most important thing; it is trite, but basically true, that what teaching should do is to teach a student how to do things for himself. The purpose of a university, as many others have said, is education for self-education. The amount of factual information you can accumulate over four or seven years is very small compared to what you have to assimilate over a lifetime. If, in college, an individual does nothing more than to discover how to learn, and how to use knowledge, then the primary purpose of university education has been achieved.

When your appointment as one of five new Ford Professors at M.I.T. was announced, it was said that you and the other Ford Professors were to be particularly concerned with interdisciplinary teaching and research activities. Have you delineated your own responsibilities as a Ford Professor?

As I see it, my responsibility as a Ford Professor is to try to anticipate the changes needed in engineering education and help put them into effect. M.I.T.'s engineers have not made their reputations as knob-pushers. We have always aimed to turn out men in the forefront of their field; men who will keep pushing back frontiers and develop new disciplines if they are needed. This is what Doc Lewis did when he helped to start the profession of chemical engineering. Our aims remain the same, but it does not necessarily follow that the means we employ to attain our ends can remain unchanged. One of my jobs is constantly to re-examine the means. This is also the job of every M.I.T. professor and they are doing it. A Ford Professor differs in degree. He is charged with making this job a primary concern, to put it ahead of his own research and specialized teaching.



Warren K. Lewis, '05, forced Mickley to use his skills.

Is one of your concerns that M.I.T.'s engineers must also be scientists?

A thorough training in science is certainly essential but this is not enough. The job of an engineer is to make things. They must have the ability to understand and exploit the discoveries of others as well as to invent on their own. Science is indispensable to understanding and of enormous help to invention and exploitation. However, the latter involve other factors. For example, inventions are constantly made before a precise scientific understanding of the phenomena is available. Exploitation must usually be done before all the answers are known. The premium for rapid transition from an

idea to a profitable enterprise is so great that the engineer must move before he has all of the questions resolved. The ability to decide when risks are justified is an essential feature of an engineer. One of the dilemmas in engineering education is the relative emphasis to be placed on the development of the various skills needed by the engineer.

Do young men sometimes decide whether they are going to become engineers or scientists before they are fully aware of the responsibilities and opportunities of either?

A real problem. Despite some of the fuzzy problems of semantics, there are differences between engineers and scientists, distinct ones, and these will very likely remain. A lot depends on what a man's motivations are. Insofar as we can help to describe, to illuminate these differences to our students, we are helping them to make wiser decisions.

After all, there are relatively few pure scientists.

There are few pure scientists as indeed there are few pure engineers. By that, I mean that there are few scientists who are working without some applied motive . . . and few engineers who are not also interested in knowledge for knowledge' sake. Between the two there are all gradations.

Are you implying that exact scientific understanding is not necessary or always unobtainable in engineering?

We want all the knowledge available, but must work with what we have. We do not understand in a truly scientific way the physical processes used in the manufacture of most of our everyday materials, or the operation of most of our machines and devices. For example, the phenomenon of combustion is utilized in countless ways. The details of the burning process are, however, fantastically complicated, and we are not able to predict the exact behavior of a combustor. If we could, the edge in rocket booster capacity currently enjoyed by the USSR would be easily overcome, whereas, in fact, closing the booster gap requires a major effort. The engineers who are handling the booster program recognize that they must produce a workable device without fully understanding the details of its operation. The need is now, and they cannot wait for the complete knowledge they would like to have. This situation is typical of that faced by the engineer. The information needed to insure success is never available in time, yet the job must be done. The premium for success is large and the penalty for failure severe. Despite the foundation provided by science, the practice of engineering involves considerable art, extrapolation, and the assumption of risk.

An engineer always has to cut something short. There's never enough time to be sure. There's an optimum point at which he has to make his decision.

In engineering education, one must supply the scientific background the engineer requires and, at the same time, develop the skills which are needed to get things done when there isn't enough information available. The worry that many educators have concerning the increased emphasis on analysis in engineering education is not that analysis is bad, almost all of them will admit that, to the contrary, it's very good. The concern is that analysis is forcing out of the curricula other areas which are also essential to engineering. The goal of engineering education, then, is to present an optimum mixture for each student. We may never attain our goal but we can never stop trying.

When did you decide that you wanted to teach?

In the Chemical Engineering Department there's a system whereby graduate students serve as assistants to professors. It was my good fortune to be an assistant to Bill McAdams ['17] when I came to M.I.T. in 1942. During the early days of World War II, I was his assistant in heat transmission, and, as Bill gradually became associated with other wartime activities, more and more responsibility was delegated to me. I had done some teaching before this, although not much, when a graduate student at Caltech. But this time, I began teaching in earnest. I found that I liked it, and I decided that I wanted to teach. That is how I began.

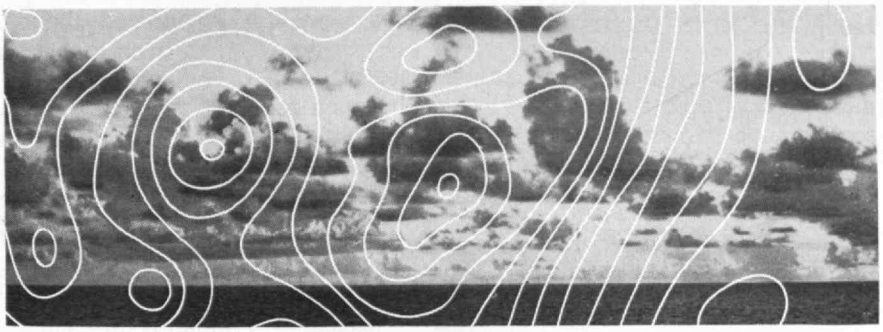
Then you've never been in industry?

I have been in industry, as a matter of fact. I was an engineer with an oil company in California before coming to M.I.T. and I had worked summers while at Caltech. Then about seven years ago, I took a leave of absence from M.I.T. and went to work in industry. You may be interested in how this came about. I had been puzzling over engineering education and came to the conclusion that engineering teachers should have engineering experience. A review of my own background showed that I had considerable experience as an engineering consultant but my employment as a full-time engineer in industry was prior to World War II. I decided this should be remedied and looked around for a job in industry. My specifications were severe: I stated that I was going back into teaching at the end of a year or so and yet I wanted to assume the responsibilities of a permanent employee. No concerns I could find were able to offer this kind of a job. My solution was to take a leave of absence from M.I.T. and to start, with some friends, a technically based company in Cambridge, Mass. We had the usual growing pains and each of us had to be engineer, mechanic, financier, and labor expert. At the end of about a year we were out of the quicksand and I had to decide what I was going to do. I did not see how I could ride two horses simultaneously; I sold my stock, severed all affiliations with the company, and returned to M.I.T.

Some persons fear that the reliance on mathematics as a means of helping to determine a man's proficiency as an engineer may be top-heavy. Is there danger, as someone has said, that men will throw away a significant fact to make a theoretical equation fit?

Doc and I and many others are aware of a growing feeling by young engineers that if you know mathematics your problems are over. This is a serious misconception. There is a difference between mathematics as the concern of mathematicians and mathematics as the concern of the engineer. For the engineer, mathematics is the language used to describe the physical world and how it's going to behave. The engineer has to be able to do this, and there's no way around it. However, successful engineering requires far more than a quantitative description of a process or a machine. Devices have been built which were fine technically but which were engineering failures because no one wanted them. Creative engineering often is done with the most rudimentary mathematical tools but seldom succeeds in the absence of a sound knowledge of the physical world, judgment, and perseverance.

Trend Of Affairs



How Predictable Is Weather?

IF SMALL perturbations can give rise to cyclones, a meteorologist once remarked, one flap of a sea gull's wings can alter the sequence of weather events forever. Many students of the weather do not accept this idea, but Professor Edward N. Lorenz of M.I.T. recently reported findings that seem to favor the gull.

Professor Lorenz has been studying the predictability of hydrodynamic flow, and that of the weather especially. He noted, in an address to the New York Academy of Science in January, the still unsatisfactory results of efforts to predict it subjectively, dynamically, and statistically. Without belittling subjective forecasting, he dealt mainly with the two latter methods—and described studies of them performed by electronic computers.

Since fast computers became available, encouragingly good 24-hour forecasts have been made by solving dynamic equations that appear to govern the weather's behavior. Statistical prediction, by formulas derived from past observations, also has produced some gratifying results. Neither method, however, has proven as satisfactory thus far as was anticipated, and the subjective method is still widely used.

Professor Lorenz' work has led him to believe that a dynamical or quasi-dynamical method is likely to be superior to a statistical method. But this, he warns, is a preference for theory over observation which is based on theoretical work.

To evaluate the capability of the statistical method, a hypothetical atmosphere was set up a few years ago in a General Precision LPG-30 computer in the M.I.T. Department of Meteorology. This model was nothing but numbers. These numbers did not represent measurements of the real atmosphere at any time or place. With them, however, it was possible to compute the state of an imaginary atmosphere at intervals corresponding to six hours for a period corresponding to 20 years in the real world.

The hydrodynamic flow which was thus simulated numerically was governed wholly by equations that were similar to, but simpler, than those needed to forecast real weather dynamically. This flow, therefore, was intrinsically predictable from the equations, and the experimenters' objective was to see whether such a flow also could be predicted by statistical methods. They found the answer was "yes" at short ranges, but not at long ranges.

While doing this work, the meteorologists sometimes wanted to repeat parts of previous computations. So they took values that the computer had reported and re-entered them as new initial conditions. Subsequent events then sometimes turned out to be different than those which previously had followed such conditions. This seemed strange, but the explanation was quickly found: Numbers which contained six significant figures had been rounded off to three. So the new initial conditions were not quite the same as former ones, and constituted small disturbances that proceeded to grow.

The researchers then let the computer make a number of pairs of runs from nearly but not quite identical initial conditions—and in every case the pairs of solutions eventually diverged and finally lost all resemblance to each other.

There always will be errors and gaps in observations of the real atmosphere, Professor Lorenz reminded the New York scientists, and his findings with the model suggest that the time required for such errors to result in worthless predictions may be highly variable. If there are any errors or gaps in observing the initial state, he said, neither dynamic nor statistical methods can predict nonperiodic flow perfectly—even at short range—and as the range becomes infinite the predictability of the flow falls to zero.

"In the real atmosphere," Professor Lorenz said, "average initial errors can increase by a factor of five before a forecast becomes generally poor. Over regions like the United States and Europe, where observations are plentiful, the tolerable amplification is considerably larger; over the oceans it is presumably smaller.

"If the results of recent numerical studies are at all applicable to the atmosphere, they suggest [that] . . . good forecasts several days in advance do not seem to be prevented simply by current errors in measurement. If, however, we are genuinely interested in forecasting a few weeks in advance, we should give serious consideration to enlarging our network of observing stations, particularly over the oceans." But possibly, he added, significant events occur much swifter in the real atmosphere than those represented in the numerical model, and the maximum range at which present errors in measurement allow good predictions may already have been reached.

The work thus reviewed was sponsored by the Geophysics Research Directorate of the Air Force Cambridge Research Laboratories.

How the Pole Is Bent

MULTIPLE FLASH photographs usually are made in a darkened place so that the shutter can be open for a sequence of flashes. There was so much light in the Boston Garden during the Knights of Columbus meet this winter that this was not practical. But Professor Harold E. Edgerton, '27, wanted to show the bend in the pole as a vaulter goes up. So he used a fast-recycling shutter that could be opened by hand, for 1/200th of a second about three times a second, and fast-charging strobes that flashed whenever the shutter was fully open. His film was Panatomic X, and he lighted the subject from two sides with G.E. FT-24 (same as FT-503) flash lamps and 30-degree, 10-inch reflectors. The vaulter, Henry Wadsworth, was using one of the new fiberglas poles. There were no M.I.T. entries because of the dispute between the Amateur Athletic Union and the National Collegiate Athletic Association which had not then been settled.



The M.I.T. Alumni Association's Nominees In This Spring's National Balloting

ROBERT H. WINTERS, '33, of Toronto, has been nominated to be the M.I.T. Alumni Association's 70th President. Others presented by the National Nominating Committee for the balloting this spring include *Samuel A. Groves, '34,* for Vice-president, and *Gregory Smith, '30,* and *Ralph H. Davis, '31,* for membership on the Executive Committee.

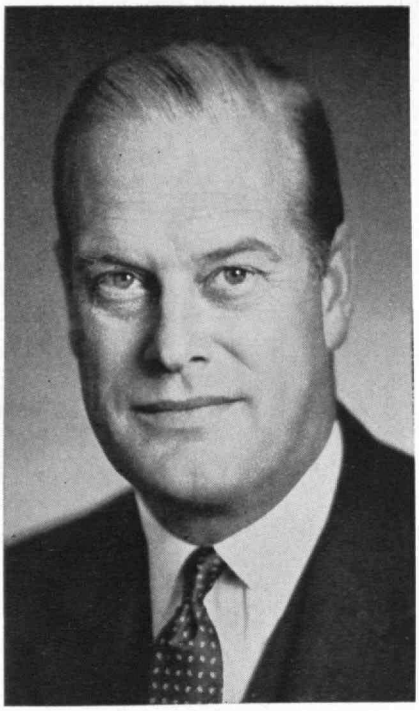
Mr. Winters is president of the Rio Tinto Mining Company of Canada Limited, Rio Algom Mines Limited, Preston Mines Limited, and Rio Tinto Dow Limited, and a director of many companies. He has been active, too, in political affairs and was minister of Public Works from 1953 to 1957. He is a member of the M.I.T. Corporation and the boards of York University and Mount Allison University.

Mr. Groves is president and director of the United-Carr Fastener Corporation, Boston; Mr. Smith is president and general manager of the Eastman Gelatine Corporation, Peabody, Mass.; and Mr. Davis is a partner in Fairfield & Ellis, Boston.

For nomination as Alumni Term Members of the Corporation for five years, the committee has submitted the names of *William L. Taggart, Jr., '27, Elisha Gray, '28,* and *Thomas F. Morrow, '35;* and to serve the remaining year of the term of John J. Wilson, '29, it has offered the name of *Ivan A. Getting, '33.*

Mr. Taggart, the Association's 69th President, is executive vice-president of Dewey and Almy Chemical Division of W. R. Grace & Co., Cambridge; Mr. Gray is chairman of the board of the Whirlpool Corp., St. Joseph, Mich.; Mr. Morrow is vice-president of the Chrysler Corp., Detroit; and Mr. Getting is president of the Aerospace Corp., El Segundo, Calif.

Nominees for the National Nominating Committee are *Samuel R. Spiker, '25, Anthony R. Savina, '30, Walter S. Wojtczak, '37,* and *John B. Kaymen, '48,* District 3; *Arthur W. Davenport, '23, Louis B. Peterson, '27,* and *Robert W. Blake, Jr., '41,* District 6; *Edgar F. Seifert, '19, A. Paul L. Hotte, '42, Charles S. Ricker, '42,* and *Charles L. Sollenberger, '44,* District 7.



Robert H. Winters, '33

M.I.T. Summer Programs

SPECIAL summer programs to be offered at M.I.T. this year will include the following:

Traffic Flow, by E. Farnsworth Bisbee, Assistant Professor of Civil Engineering.

Estuary and Coastline Hydrodynamics, by Arthur T. Ippen, Professor of Hydraulics.

Industrial Photoelasticity; Strain Gage Techniques; Strain Gage Applications; Nondestructive Testing, by William M. Murray, '33, Professor of Mechanical Engineering.

Physical Measurement and Analysis, by Nathan H. Cook, '50, Associate Professor of Mechanical Engineering.

Random Vibration, by Stephen H. Crandall, '46, Professor of Mechanical Engineering.

Instrumentation for Measurement and Control, by Shih-Ying Lee, '43, Associate Professor of Mechanical Engineering.

Electronic Models for the Engineering of Multiport Systems, by Henry M. Paynter, '44, Associate Professor of Mechanical Engineering.

Structure and Properties of Interfaces, by Philip L. de Bruyn, '52, Professor of Mineral Engineering.

City and Regional Planning, by Frederick J. Adams, Professor of City Planning.

Infrared Spectroscopy—Technique; Infrared Spectroscopy—Applications, by Richard C. Lord, Professor of Chemistry and Director of Spectroscopy Laboratory.

Probabilistic Systems Analysis; Quantitative Structure of Decision, by Ronald A. Howard, '55, Associate Professor of Electrical Engineering.

Advanced Control Theory and Applications, by George C. Newton, Jr. '41, Associate Professor of Electrical Engineering.

Molecular Designing of Materials and Devices, by Arthur R. von Hippel, Institute Professor and Professor of Electrophysics.

Methods of Operations Research, by John D. C. Little '48, Associate Professor of Industrial Management.

Industrial Dynamics: Advanced, by Jay W. Forrester, '45, Professor of Industrial Management.

Management Information and Controls, by Zenon S. Zannetos, '55, Associate Professor of Industrial Management.

Planning Marketing Strategy and Tactics, by Henry J. Claycamp, Assistant Professor of Industrial Management.

Inertial Navigation Systems Evaluation Techniques, by John Mason Buchanan, Assistant Director of the Instrumentation Laboratory.

Probability and Random Variables, by George P. Wadsworth, '30, Associate Professor of Mathematics.

Scientific and Engineering Reports, by Robert R. Rathbone, Associate Professor of English.

Most of these programs run one or two weeks, and tuition varies from $200 to $400. Dates and further information may be obtained by writing to the Director of the Summer Session at M.I.T.

For Educational Services

THE FORD FOUNDATION has granted $1,000,000 to Educational Services Incorporated of Watertown, Mass., which began as the Physical Science Study Committee (PSSC) under M.I.T.'s auspices, for the general support of its operations. Dr. Carroll V. Newsom, President of the nonprofit educational research organization, explained, when this was announced in January: "The Ford Foundation grant recognizes ESI's need for substantial capital reserves with which to pursue its educational programs both in the United States and abroad. Educational Services Incorporated can now accept with confidence its opportunities for service in the future."

ESI was founded in 1958 to handle the expanding PSSC program and to provide administrative guidance and support for other course-content improvement projects. The PSSC course in physics is now being taught to about 135,000 high school students in the United States, and the materials used have been translated into Swedish, Norwegian, Italian, Japanese, Hebrew, Spanish, Portuguese, and French and are being prepared in Danish and Turkish. Some of 53 films that PSSC has produced are now being adapted for college use.

ESI also is working now in other areas:

◖ *Elementary Science Study*. Physicists, chemists, biologists, mathematicians, and scientists from other disciplines are preparing material for the elementary grades. This will include a text, films, classroom experiments, and teacher-training programs. Some of the topics are being studied this year in experimental classes at selected schools in New Jersey, Pennsylvania, Delaware, Oregon, New York, and the District of Columbia.

◖ *Kanpur Indo-American Program*. The Indian Institute of Technology at Kanpur, southeast of New Delhi, is being developed into a major center for education and research in engineering and science with the help of nine American universities. ESI administers the project contract which is financed by the United States Agency for International Development (AID). Twelve American staff members are now teaching at Kanpur and it is expected that this number will rise to 24 next fall.

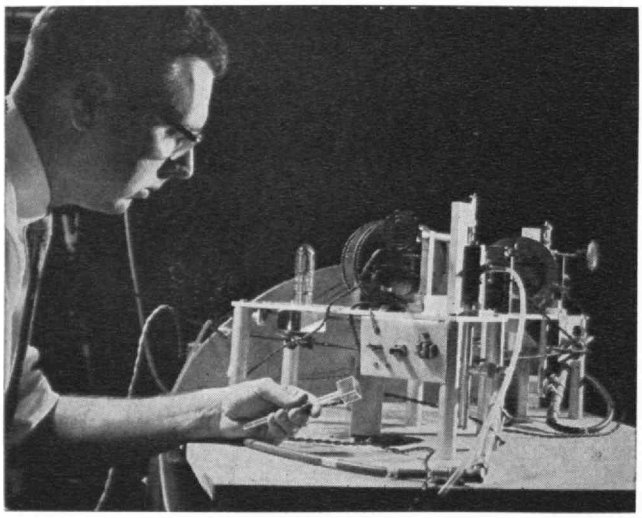
◖ *African Education Study*. Conferences at Accra, Ghana, in 1961, and at Entebbe, Uganda, in 1962, resulted in a broad program to help African nations assess their educational needs in the sciences, languages, social studies and humanities. Text material in mathematics prepared by ESI will be tried in many African schools this spring, and representatives from Africa will participate in ESI summer conferences in the United States this year.

◖ *Commission on Engineering Education*. This commission was formed at Boulder, Colo., in 1961 and has its headquarters in Washington. It is developing educational resources of particular relevance to fundamental fields of engineering.

◖ *Semiconductor Electronics Education Committee*. The teaching program of this committee, now being used in preliminary form at 11 universities, demonstrates the principles of semiconductor devices and important features of electronic circuit design and construction. The committee's material includes six paperback books, take-home laboratory kits, and films.

◖ *National Committee for Fluid Mechanics Films*. Films about fluid mechanics produced by this committee are being used at more than 60 universities and government institutions. The first two major films produced, *The Fluid Mechanics of Drag* and *Vorticity*, are being used in Ghana, Great Britain, Australia, Canada, Israel, and Holland. A set of 10 four-minute cartridge loops on fluid mechanics phenomena for Technicolor projectors was produced last year.

◖ *Social Studies and Humanities*. This program evolved from a conference sponsored by ESI at Dedham, Mass., in 1962 to consider revision of the present social studies and humanities curricula. Studies are being made of individual humanistic disciplines with the aim of focusing the major ideas of the past and present into a coherent framework. This program is intended to assist in the development of a curriculum in which interrelations between the different fields of study can be projected cogently at all grade levels.



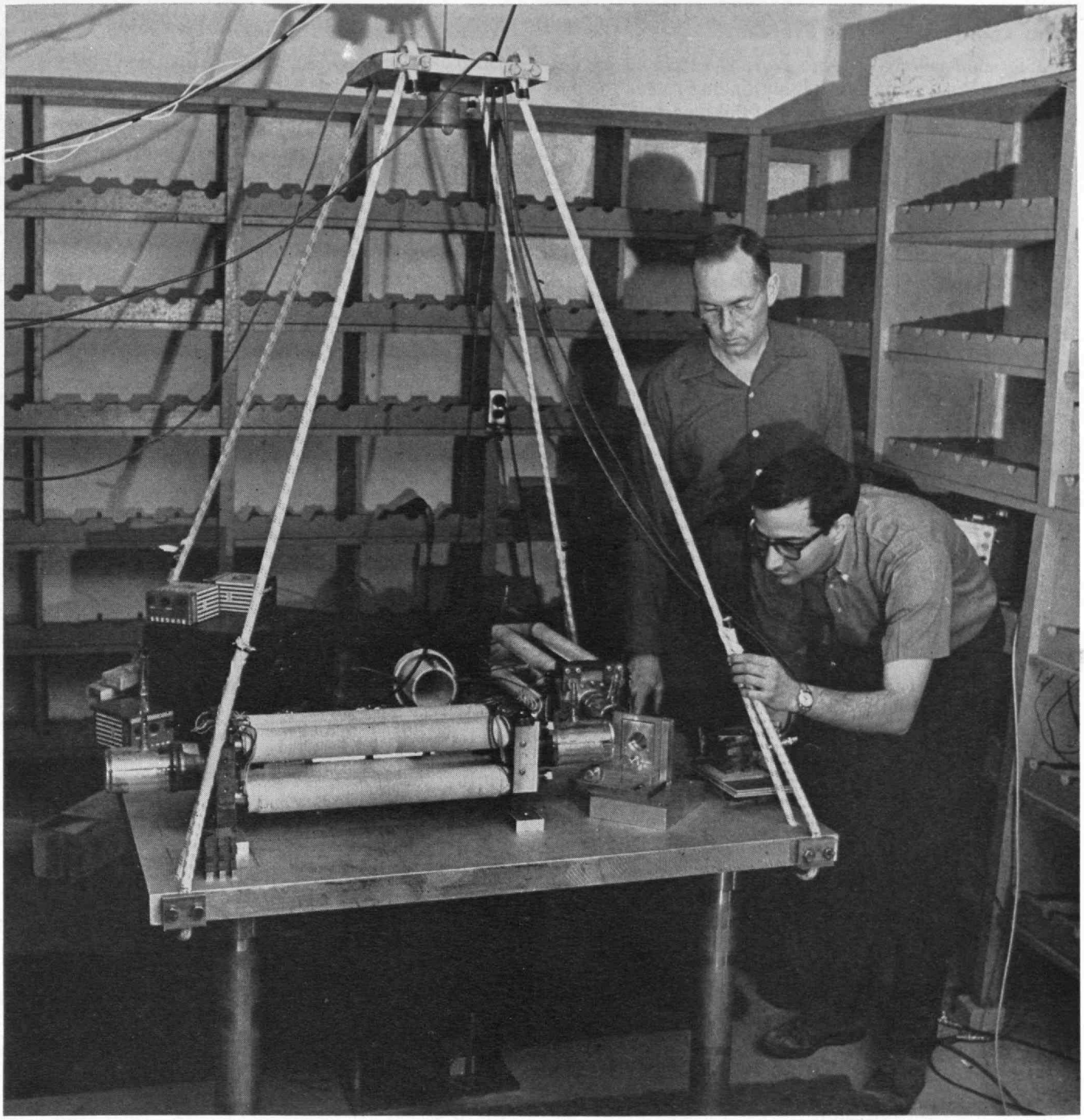
A NUCLEAR GYROSCOPE is reported to have been developed and made to operate by an Aerospace Group serving General Precision, Inc., at Pleasantville, N.Y. The group included Donald I. Shernoff, '60. The photograph above shows a senior scientist on the team, James Simpson, inspecting a fuel cell to be inserted into such a new kind of gyro in the center; a second nuclear gyro stands at the right.

The Alumni Council's Meeting

AT THE M.I.T. Alumni Council's 361st meeting on January 28, James R. Killian, Jr., '26, Chairman of the M.I.T. Corporation, recalled the origins of Educational Services Incorporated (the corporation described above) and hailed it as one of the most impressive developments in American education in many years.

It resulted from Professor Jerrold R. Zacharias' proposal to help a million high school teachers raise the quality and substantive content of instruction in physics for their 30,000,000 students. It became the mechanism for mobilizing first-rate minds, Dr. Killian emphasized, and started a movement that has now spread to many other disciplines.

The Council paid tribute at this meeting to the memory of H. E. Lobdell, '17, in resolutions read by Earl P. Stevenson, '19. Alumni Association President William L. Taggart, Jr., '27, presided, and reports were given by D. Reid Weedon, Jr., '41, on the Alumni Fund, and Gregory Smith, '30, on Alumni Day plans.



New Use for a Wine Cellar

A RESEARCH TEAM headed by Provost Charles H. Townes (above, left) has set up two helium-neon masers in what was formerly a wine vault at M.I.T.'s Round Hill Field Station, South Dartmouth, Mass., in an experiment aimed at checking one consequence of the Special Theory of Relativity, i.e., variation in length with velocity. The wine vault, built into bedrock, was selected because of its relative freedom from distorting vibrations. The masers are mounted at right angles—one parallel to, and one perpendicular to, the earth's orbital velocity vector—on a rotatable table suspended from the ceiling by airplane shock cords that further shield the experiment from vibrations. Maser beams will be reflected simultaneously into a photocell that, in turn, mixes the beams and produces a beat—or difference—frequency. As the table is rotated and the masers change position with respect to the earth orbital velocity, one might expect a change in the transit time of light between the two mirrors, if this were not compensated by relativistic changes in the lengths of the masers. These changes, although far too tiny for ordinary measurement techniques, should be detectable through changes in the beat frequency. The technique used can detect changes in optical path lengths as small as about one thousandth of an atomic diameter. The experiment thus provides a precision method of checking the laws of relativity and any variation in the velocity of light with direction. Other members of the team are Associate Professor Ali Javan (above, right), who jointly with Townes is engaged in fundamental research on masers; Dr. T. S. Jaseja, a post-doctoral researcher; and John Murray, '65. Round Hill is the 278-acre estate of the late Colonel E. H. R. Green which was willed to M.I.T. as a research station in 1948.

The Campus Housing Problem

M.I.T. soon will have more housing available for its women and married students, but finding rooms for the men in the new class entering next fall now seems liable to be extremely difficult.

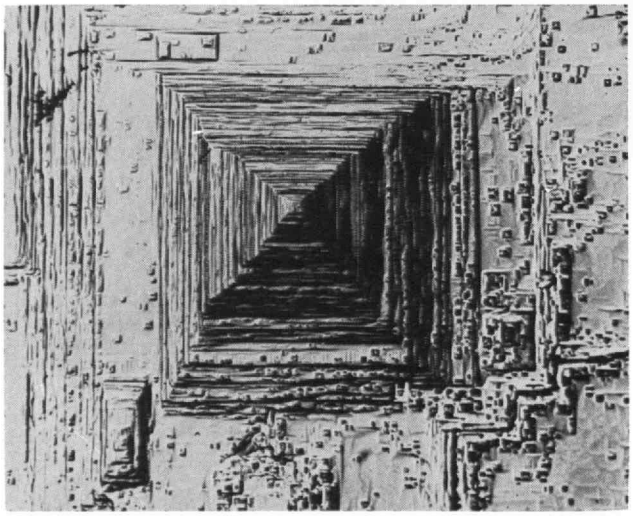
This year, Dean of Residence Frederick G. Fassett, Jr., recently told the Faculty, 1,518 undergraduates are living in the houses on campus and there is a waiting list for every bed; 908 are in fraternity houses, 715 in apartment and rooming houses, and 205 are commuting from their homes. Twenty-three freshmen now are ensconced in apartments engaged by the Institute as emergency quarters for them. Since only 289 of the men now living in the undergraduate houses are seniors, more such provisional arrangements will probably have to be made next fall.

An even larger percentage of graduate students must live off campus. The Graduate House accommodates only 452 of 1,753 single men. The new buildings going up at the far end of the athletic fields will provide apartments for 210 of the married students, who numbered 1,562 at the beginning of this academic year.

Fluid Dynamics Demonstration

M.I.T. undergraduates studying fluid dynamics under Assistant Professor Philip A. Drinker, '61, of the Department of Civil Engineering now see a tennis ball stably held in mid-air as shown on the cover of The Review this month. It is held there by the jet of air emerging from the upright glass tube at the left, and the manometer board used in the demonstration can be seen directly in front of the lecturer.

The wind tunnel apparatus he is using includes two vacuum cleaner fans, and has various interchangeable parts to give students great freedom in devising experiments to be performed with it. The apparatus was developed under the Ford Foundation's grant to the School of Engineering.



ANTICIPATING April Fool's Day, Lincoln Laboratory men have pointed out "the multi-lane highway and Howard Johnson restaurant at the left of the pyramid" in this "aerial photo." Actually, it shows nothing of the sort because this is a magnified view of a single crystal of silicon grown to study optical properties of deep-level impurities in semiconductors, and what looks like a pyramid is really a hole.

Management Education Fellowships

DOCTORAL FELLOWSHIPS providing tuition plus stipends of up to $6,000 a year have been set up at the M.I.T. School of Industrial Management to attract outstanding young men now in business and government into careers in management teaching and research. Candidates for the fellowships must hold the master's degree and have behind them several years of significant and successful experience in business, industry, or government. The first fellowships will be awarded for the 1963-1964 academic year. The number awarded each year will range from two to six, depending on the number of qualified applicants. They have been made possible by a grant from the Alfred P. Sloan Foundation.

Schools of industrial management traditionally have selected faculty from among scholars trained in the intellectual disciplines upon which industrial management rests—economics, mathematics, psychology, statistics, etc. In recent years, however, several leading schools have initiated Ph.D. programs in the specific intellectual area of business management. M.I.T.'s Ph.D. program in industrial management was started three years ago and the school's first doctoral degree in the field was awarded last June. Thirty-five students are now at various stages in the course of study and research.

Studies in the M.I.T. doctoral program are divided into two broad categories. The first includes such disciplines as economics, psychology, applied mathematics and statistical analysis. The second category includes those applied areas with which industrial managers are chiefly concerned, such as production, marketing, finance, and organization. Predoctoral students are required to possess proficiency in all of the underlying fields as well as the applied fields.

Some Steel from Russia

SEVERAL papers presented at the American Geophysical Union's meeting at Stanford University in December described a chunk of metal that was found, still very hot, in a Manitowoc, Wis., street last September 4. It was brought to M.I.T. and shown by Bill C. Giessen and Professor Nicholas J. Grant, '44, to have been ordinary steel. But this was extraordinary metal because it was a 20-pound fragment of the five-ton Sputnik that the Russians launched on May 15, 1960, and scientists at the Smithsonian Astrophysical Observatory and elsewhere found interesting clues in it to the fate of material during such a long journey and re-entry into the atmosphere from outer space.

Management Books Honored

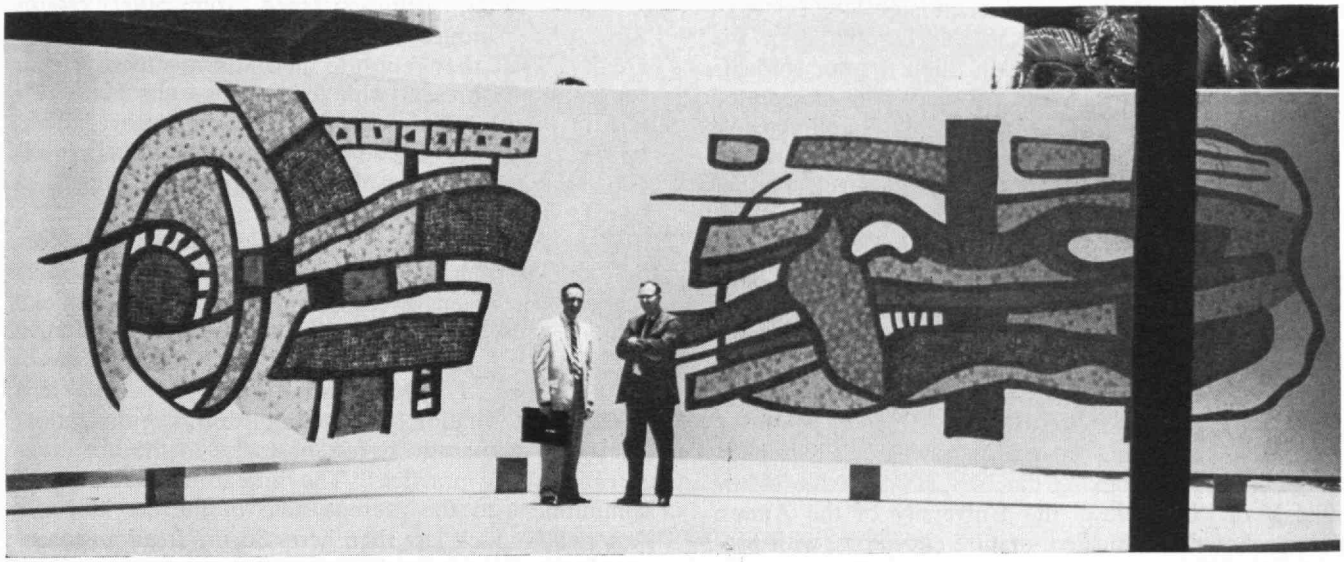
M.I.T. men wrote two of the five books chosen as the best on management in 1961-1962 by the Academy of Management, under a McKinsey Foundation program of identifying books of greatest value to executives. They were George C. Houston, '27, of Briarcliff Manor, N.Y., who wrote *Manager Development: Principles and Perspectives,* published by Richard D. Irwin, Inc., and Jay W. Forrester, '45, Professor of Industrial Management at M.I.T., who wrote *Industrial Dynamics,* published by John Wiley & Sons, Inc., and The M.I.T. Press. (An excerpt from the latter was published in the January, 1962, issue of The Review.)

(The Trend of Affairs is continued on page 40)

Inter-American Civil Engineering

A new M.I.T. program overseas gives students and Faculty greater freedom and opportunities

BY FREDERICK J. MCGARRY, '50



THE INTER-AMERICAN PROGRAM described in this article is directed by Professor Charles L. Miller, '51 (right, above), with Hugo Perez La Salvia, '45, in the courtyard of the National University of Caracas, Venezuela. The photo was taken by the author, who is associate professor of civil engineering at M.I.T. and this venture's associate director.

AN IBM COMPUTER in a women's jail on a mountainside in Colombia, and an angry student demonstration echoing through the halls of the National University of Caracas are fresh in the memories of some members of M.I.T.'s Faculty. They were noted during the planning of a new and exciting educational experiment now under way in the Civil Engineering Department: the Inter-American Program. This is its story.

About three years ago a small group of our Faculty, while serving on a Departmental planning committee, began to grope for some way of setting up an overseas activity. The motives were not clear; indeed, that it could even be profitable was not widely accepted, since the idea had no form, substance, or dimensions. But the feeling persisted that handsome opportunities and real challenges might be found in an overseas context.

Some of our most experienced and senior professors had started a sophomore subject called Civil Engineering Projects a few years previous. In it, small teams of students studied various phases of actual, full-scale problems. The students were given almost complete responsibility to recognize each problem's elements, correlate their work with that of other teams, dig up needed information, interview people in the profession, evolve sensible solutions, and defend them before Faculty and students. It was a loose form of seminar-type teaching, with the professors acting much like consultants, and was directed at such problems as a mid-town vehicular tunnel for Manhattan, a large manufacturing complex on Route 128 outside of Boston, and the hydroelectric dam-flood control-aluminum production network on the Volta River in Ghana. Forcing the students to consider the total picture before they were formally equipped to solve its details proved to be an effective stimulus to their own self-education; the work they put into projects, and the quality of the solutions, were astonishing.

This experience naturally influenced the thinking about an overseas effort, and The Overseas Study Plan as it eventually took shape bore a strong imprint of the former projects. The Overseas Study Plan's authors proposed that from 12 to 15 students with two or three professors from the department team up with a similar group from a foreign school to work together for a summer vacation period at an overseas location which offered a good problem. This might be a river valley development study, the planning of a transportation network, the design of a water distribution and sewage disposal system, or the development of better construction methods using local materials.

By physically putting our students into the problem environment and by having them work in partnership with foreign students and teachers, we proposed to achieve an educational exposure which would be more comprehensive, both professionally and culturally, than would otherwise be possible.

The Choice of Latin America

The next step was to estimate its value in the real world of the underdeveloped countries, and this proved to be critically important. A small grant from the Car-

negie Corporation enabled pairs of our professors to visit colleges and universities in South America, Turkey, Lebanon, Sudan, Nigeria, Ghana, and Sierra Leone and see, in fact, what the prospects were for mutually rewarding collaboration. During these travels, in the summer of 1961, we flew the Andes in the Beaver (a single-engine, unpressurized plane) with an Esso road map for navigation; experienced the clatter and suffocation of the African rain forest, and saw the unreal loveliness of the panorama of Beirut—and we learned a great deal.

We learned that only a few of the 13 locations that we visited, all of which had been carefully selected, were actually suitable for profitable co-operation. We learned that our goal, better education for our students from a realistic field exercise, usually was interpreted by our hosts as technical assistance to their country. We saw how often a former colony's university effort still was keyed to the society of its previous ruler rather than to its own. We observed with humility the high respect with which M.I.T. is regarded all over the world, and we learned to be prudent, to avoid local distortions of this respect. We saw levels of poverty and luxury, ignorance and sophistication, which simply cannot be described with words. We felt, firsthand, "the revolution of rising expectations."

We shivered in the thin dry air of Bogotá, cool even in August, as we sat in a former women's jail on a mountainside overlooking the city and talked with the officials of "Uniandes," the University of the Andes. These scholarly, dedicated, mature educators, with professional abilities second to none, are leading a revolution wherein politics, force, and privilege have no roles. Their resources virtually all go to teaching and *Time* magazine has hailed their rigorous arts-and-science-oriented curriculum as a crucial departure from the fashionable courses in law and medicine. And in Caracas, at the National University, a student city whose architecture makes that of most schools seem shabby, we watched an official's frightened reaction to a mob of howling students as they protested an inconvenient class schedule. It was changed on the spot—a decision catalyzed, perhaps, by a bomb which had been exploded in one of the dormitories the day before. We learned a great deal.

After these and many other observations, and much thought, we launched the Inter-American Program in Civil Engineering. It is focused on Central and South America for many reasons: geographical proximity, the community of interests that we share, and the abundance of natural wealth. South America has an established university system in which civil engineering is well represented, many Institute Alumni hold responsible positions throughout the area, the activities of U.S. industry there are widespread, and our Faculty has accumulated regional experience there from past consulting work. The essence of the program is our established education-research coupling, and Latin America offered more innovative freedom and better prospects for operational effectiveness than other areas.

Both Here and There

The program educates through shared research, in which teacher and student lose their formal identities and become collaborators as they seek new knowledge and develop new skills in applying it. On each project our people spend enough time with the Latin Americans at an appropriate location in South America to grasp the subtleties and constraints imposed on the problem by the environment, to appreciate the *ambiente* in which the solution must work, and to establish rapport with their Latin counterparts. Then the team returns to M.I.T. to perform the research, build the models, conduct the analyses, program the computers, test the hypotheses, find the solutions.

Our guests share our ways of life; they may take some courses, help teach others, participate in the laboratory research, seek assistance from other groups within the Institute, become full members of our community. When they return to their homes after a year or so, we jointly present with them the results of the effort, inviting local educators, industrial and governmental representatives to a seminar to stimulate their interest, because in the next phase local resources must take up the work and move it along.

Here is where the added freedom becomes important. Latin America has great needs and great opportunities in civil engineering, but relatively few trained people. Hence, the effectiveness of every engineer must be maximized. If the use of new techniques and methods, drawn and adapted from the flood of modern scientific information, will accomplish this optimization, there are comparatively few obstacles to the abandonment of older practices. The human investment and commitment to the present state of the art in Latin America is much less than here. So the freedom to accept innovations is much greater. As one travels through Latin America this freedom is repeatedly apparent—in architecture, in structural engineering, in the use of materials, in the planning of transportation networks, in the use of computerized design and analysis. The constraints are usually economic instead of technological. Our experiences, as individuals, in many parts of Latin America have confirmed this greater freedom, and while we strive as engineers and educators to accelerate the renaissance of our profession by more science, more mathematics, and more analysis in its base, we regard this freedom as most valuable.

So one of our primary motives for the Inter-American Program is admittedly selfish: It provides a unique opportunity to evaluate the products of innovative research in civil engineering. Furthermore, it gives us access to research and educational funds which carry few restraints on their use. Thus we were enabled to start the Program during the summer of 1962 by a quarter million dollar endowment from the Carnegie Corporation and additional funds from similar donors will be available to us as needed. But we respond to the idealistic elements and benefits of the work, too: the improvement of Latin technical education methods it can engender; the enhancement of teaching as a full-time profession instead of a part-time distinction; the growth of research as a base for engineering training, the concept which has served the Institute so well; the building of strong working relationships between industry, government, and the university; the deeper human understanding and tolerance which result from working together toward common goals; and the improvements made available to a society by an alert and vigorous

(Concluded on page 50)

A Computer-Aided Design System

Numerical control of manufacturing is spreading and the logical next step is to take computers into partnership with engineers

BY WILLIAM STRUBLE

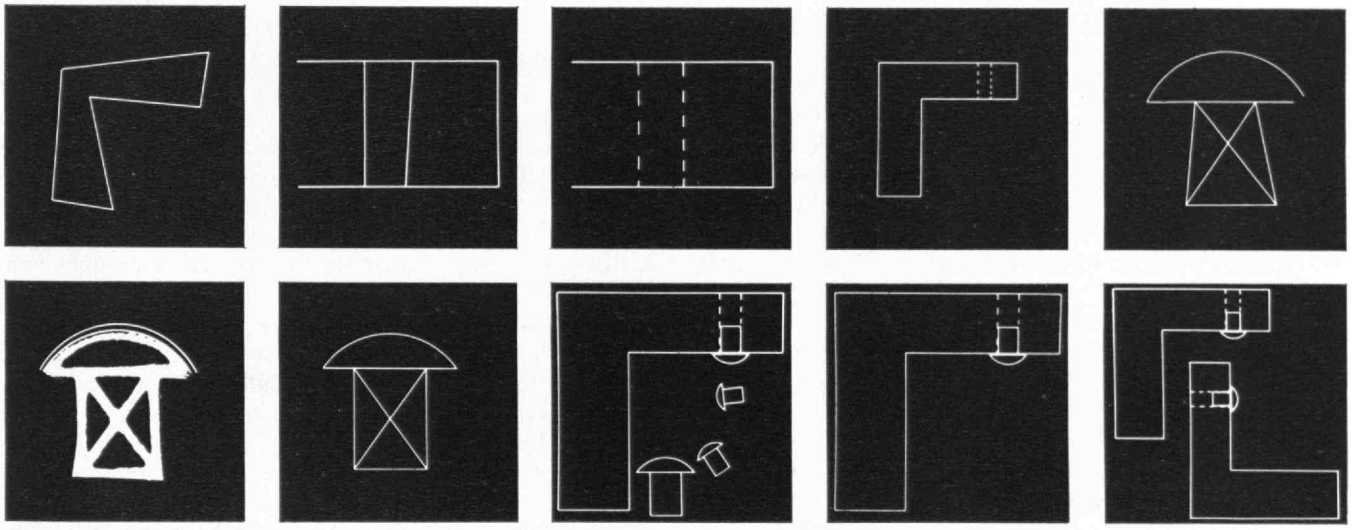
AMERICAN industry today is busily engaged in applying numerical control to almost every type of manufacturing process. Numerical control means the automatic operation of a variety of machine tools by means of computer-based data-processing techniques. In many cases, the great accuracy that numerical control affords is being used to develop new types of tools and production methods. Numerical techniques can control a number of simultaneous operations far beyond the capabilities of a human operator and they make it possible to depart radically from conventional methods enjoined by human limitations.

With increasing application of numerical control and concurrent standardization of methods, economies are being realized through the exchange between plants of manufacturing information in the form of numerical tape. Chances of mistakes in drawings, specifications, and manufacturing are almost completely eliminated and part spoilage is reduced. Studies of the utilization of one new $140,000 multipurpose numerically controlled machine indicated that it remained in use in the factory more than 75 per cent of the time, as compared to the normal 15 to 25 per cent for standard machines; 80 per cent of the users surveyed reported savings.



An engineer can quickly master "Sketchpad" and use it as a research tool.

The first recorded demonstration of numerical control took place early in the last decade in the form of the M.I.T. Milling Machine produced by the Servomechanisms Laboratory. Industry thereafter began active development of numerical techniques, and at M.I.T. the application of data-processing meth-



THESE PICTURES show an exercise in the design of a bracket and rivet on a computer scope. Bracket is first sketched with light pen, then straightened to the correct "L," and stored in the computer's memory while the designer sketches rivet. Blurred outlines in photo at left below show the rivet responding to correction controls. It is then reduced, turned, and pushed into hole in bracket. Final picture at right shows repetitive drawing being made.

ods evolved (1958) into the Automatically Programmed Tool (APT) system, now in widespread use as an industry standard in the United States.

Advances in this general area are rapidly bringing numerical control within reach of anyone who has an appropriate general-purpose computer and a proper program. The APT system can be operated on more than 200 large computers of one manufacturer and is being adapted for use on smaller machines of other makes; the number of computer installations thus represented is 2,500 or more.

The Elimination of Drafting

A computer-aided design system will be a logical consequence and adjunct of numerical control in manufacturing. If the information about a part could be communicated to the APT computer during the design process, the laborious tasks of drafting could be eliminated. Of even greater potential is the concept of associating an engineer and computer as partners in the function of design, with information flowing freely back and forth between man and machine at high speed and in human terms—in graphical, verbal, and symbolic languages.

The engineer, for example, may have an idea for the shape of a part: By freehand sketch and word, he describes it loosely to the computer. Switching from general to precise conditions, he may ask the machine to make various specific analyses (of weight and stress, for example). These results in hand, he may wish to alter shape, material, or other factors, and then return to further generalized descriptions. Working together, man and computer ultimately achieve an acceptable design, which can then be transmitted directly to the calculating part of the APT program. Numerical tapes are prepared without the part ever having been drafted by pen and paper (which can be done automatically, if desired, for reference).

In the hierarchy of design, the part could be one element of a system—a strut of a radar, which in turn is a component of an attack warning network. It is the objective of the M.I.T. Computer-Aided Design Project to build a powerful, universal system capable not only of serving as a simple drafting aid for a mechanical member or a circuit but also applicable to the analysis of an entire system. The project, sponsored by the U. S. Air Force and in its third year, constitutes a phalanx of about 24 persons under the direction of Douglas T. Ross, '54, who headed the APT program, of the Electronic Systems Laboratory, and Associate Professor Steven A. Coons, '32, of the Design Division of the Mechanical Engineering Department.

A Magic Stylus

Through computer-aided design, the light pen—a familiar accessory used with a computer display scope—promises to become somewhat of a magic stylus for the engineer. In a quite literal sense, the designer will need only to wave an electrical wand to make his ideas take concrete shape in the drawing on the display scope, to modify the idea at will, and to have a permanent record embedded in the computer (and recalled at will) in a form that can be logically processed. This pictorial language for the engineer is already taking form in "Sketchpad," a program that has been developed on the TX-2 computer at the M.I.T. Lincoln Laboratory. One can now draw, erase, magnify, and reduce (at a ratio of 2,000 to 1, thus providing in effect an enormous "sheet of paper"). Associated controls make it possible to sketch a rough rectangle or circle and have it appear almost instantly in perfect form. The designer finds a new and subtle freedom as he escapes the finality of lines drawn on paper. Three-dimensional drawing is made possible by another program, which enables the designer to sketch a part in perspective and rotate it on the scope to view all sides.

We all know that if we turn one arm of a carpenter's square, the second arm maintains a constant geometrical relationship to the first. Similarly, the "constraint" feature of "Sketchpad" makes it possible to observe the effect throughout a drawing of a change in one section. For example, a designer may draw a linkage, one perhaps similar to the accelerator linkage of an automobile; then by applying the light pen to the computer display scope, the investigator may move one arm of the linkage and simultaneously observe the motion of the other members.

"Sketchpad" is a research tool that can be mastered and usefully applied in a matter of days by an engineer with no experience in computer lore.

A Language Theory

In his recent book, *Synectics,* William J. J. Gordon discusses the fruitful stimulus of analogy in the quest for technological creativity. Tangent to this, a computer-aided design system of universal applicability should be founded on an understanding of problem structure—and should contain a language mechanism that describes the subelements of a problem, how they are interconnected, and is itself a model of the problem's structure.

A significant theoretical development of the M.I.T. project is an algorithmic theory of language that is designed to provide a common foundation for verbal and picture languages. A principal feature of this processing mechanism parses statements of a language into a tree form and inserts a "precedence string" which shows how the meaning of an elaborate, complex expression is built up from "atomic" units of meaning. The theory has already been used in translation of human languages. The problem structure eventually will carry over from algebra and language to design: Words may be replaced by components, phrases by designed sub-assemblies, and syntactic rules of language by physical rules of mating parts.

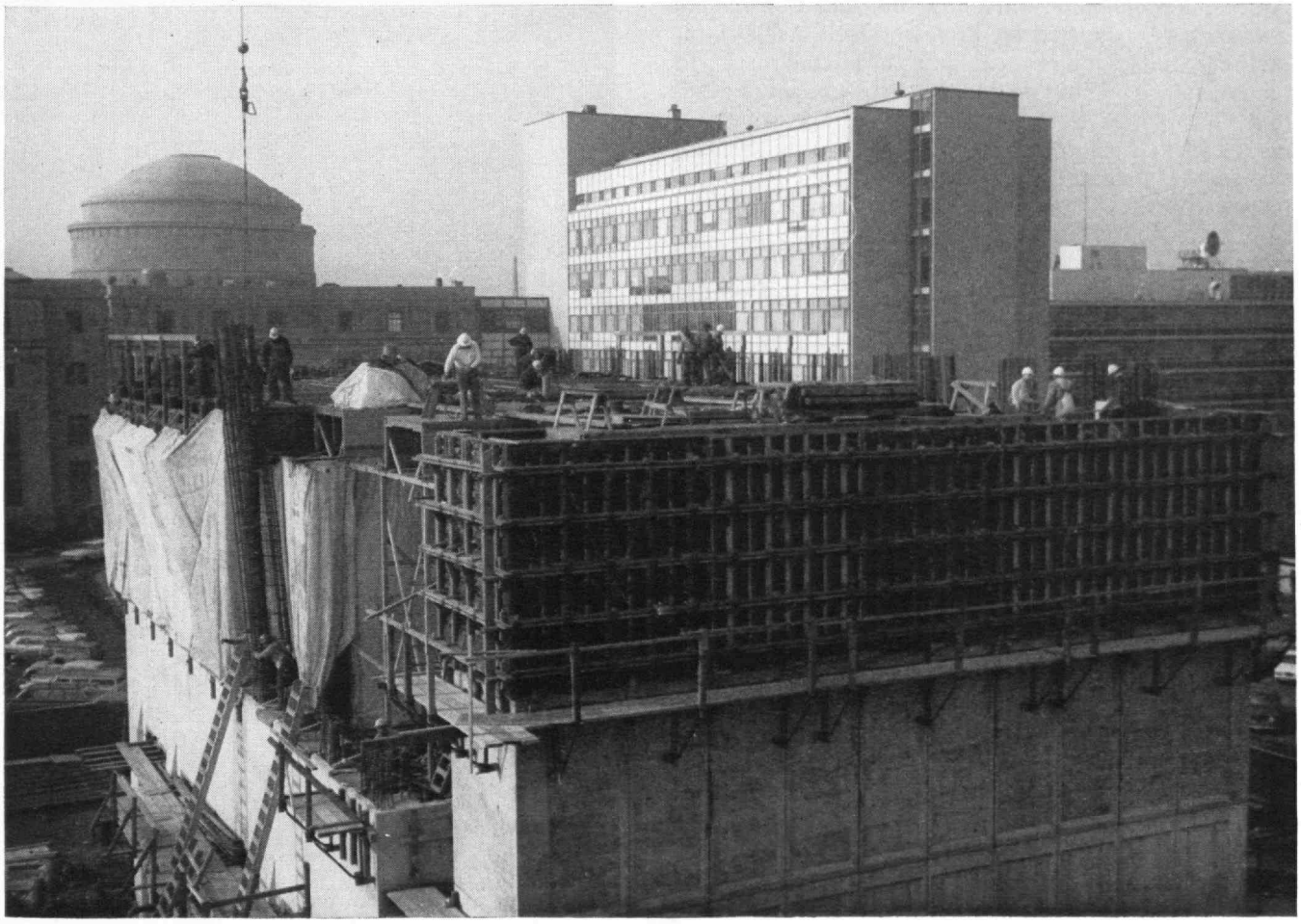
The result of continuing research promises to be a system in which mathematics, logic, and linguistics will be inextricably intertwined in such a way that almost any communication—statements from a human via the typewriter or light pen, manipulations of picture elements, or the status of mathematical or logical computations—will have meaning and will automatically cause the appropriate behavior throughout the system being investigated. Some of the subtle relationships implied here can already be glimpsed by observing that the mechanism involved in designing with the light pen is analogous to an actual APT tool as it performs machining operations.

Upcoming Additions To the Institute





NEAREST to completion (late in January) of the new buildings going up at M.I.T. was the women's dormitory pictured above . . . but applications already were pouring in for apartments in the new housing for married students that is shown being constructed at the right . . . and much the tallest of the buildings for which concrete has been poured will be the Center for the Earth Sciences below.



A Workshop For Engineers

For three years now, the Experimental Projects Laboratory in the Department of Aeronautics and Astronautics has been providing educational experience, sometimes valuable data, and occasionally entertaining sights at M.I.T. In this laboratory students think up and perform experiments to answer tough questions that have occurred to them or their instructors. They design and build much of the apparatus used, and decide how measurements are to be obtained and reported.

The place, consequently, often looks more like an inventor's workshop than a schoolroom. Strange structures arise in it and amusing antics sometimes are necessary to get the desired results.

Last term, for example, *Ronald Young, '63,* built a model of the earth's north polar basin. With it, he expected to study flows such as explorers camping on ice islands in the real Arctic have reported. This model consisted of a developing tray on a turntable. It was set up so that water could flow both into and out of it while it revolved. But there was so much slop-over that Young had to bail water as though he were in a leaking boat—until he added a pump.

Another project undertaken by two young men from Athens, *Xenophon P. Stathatos, '63,* and *Constantine Adractas, G,* (directed by Professor Holt Ashley) required so much water that they moved their gear to the Alumni swimming pool. They were studying hydrofoils, and wanted to measure the virtual mass of water moved when a plane parallel to, and below, the water's surface was raised. If they had suspended the plane they were using in a barrel, waves reflected from the sides would have bothered them. So they set their apparatus on a ladder across part of the swimming pool.

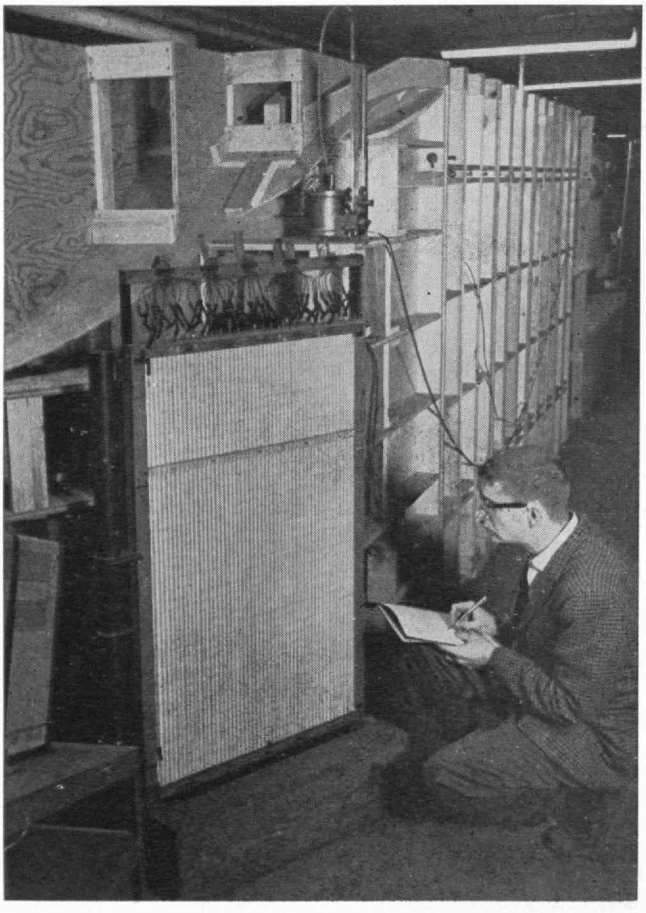
Two ordinary stools, however, sufficed to support the things used by *Ronald W. Matlin, '63,* to study crack propagation in a stressed-skin structure. He pricked a cylinder of aluminum foil, and traced its crackage. Associate Professor James W. Mar, '41, directed this work.

Several projects have involved work with a small, low turbulence wind tunnel designed by Professor Erik Mollo-Christensen, '48. Turbulence is reduced in it by blowing the air through a stack of soda straws. *John Lockie, '63,* measured the pressure distribution in this tunnel with a micromanometer, and *Howard F. Little, '63,* measured the flow's boundary at the discharge end.

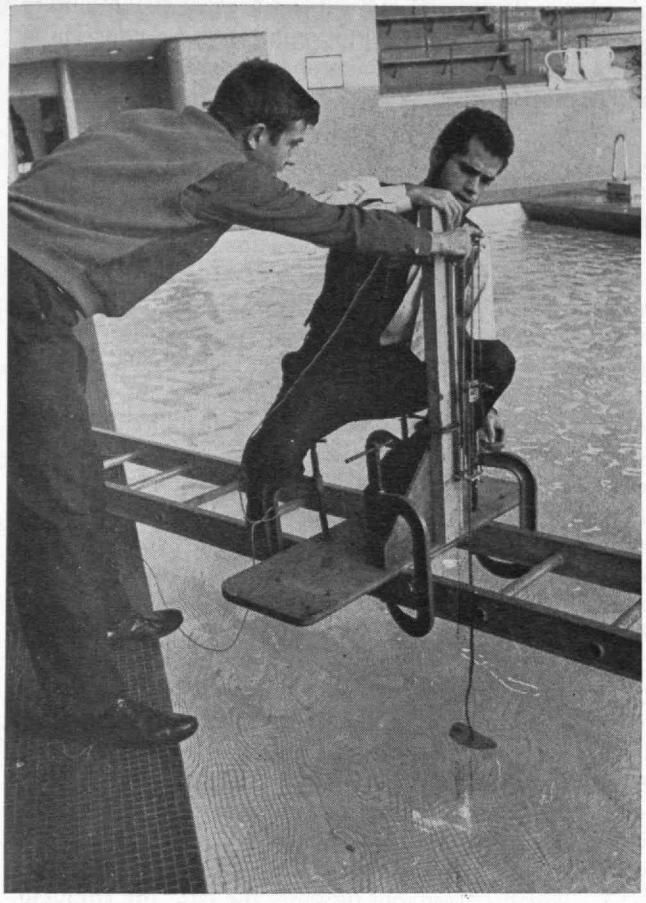
Kenneth Klein, '63, also used a wind tunnel. Under the direction of Associate Professor Joseph Bicknell, '34, he studied gustiness by sticking what looked like a glass hand into the tunnel after creating gusts by placing obstacles in the air's path. Between the glass fingers of this "hand" were electrically heated wires. The cooling of these wires revealed the velocity of gusts from all directions. Such an omni-directional probe, Associate Professor Walter McKay, '34, pointed out, could help an engineer asked to design, say, a huge antenna.



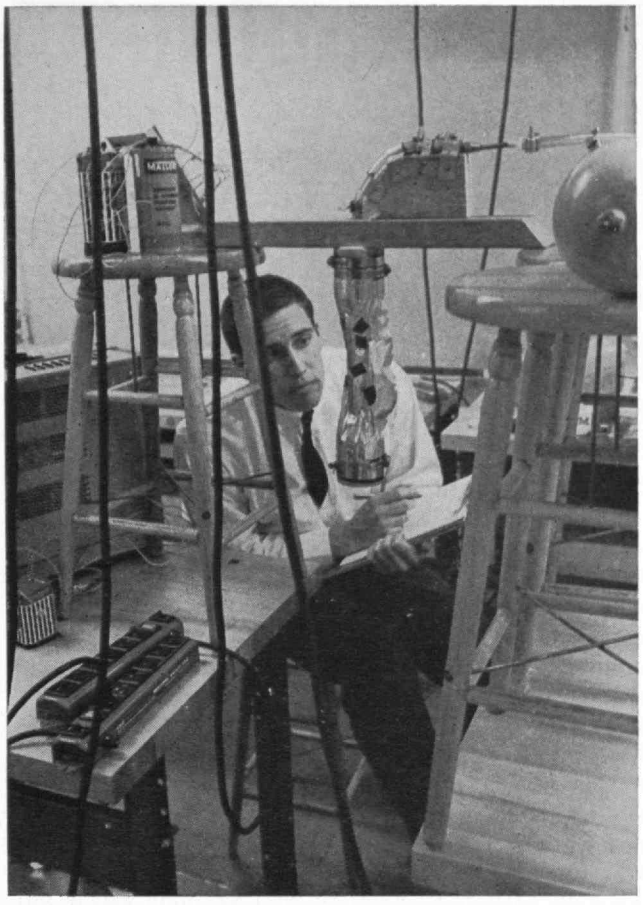
Ronald Young with his model of the Arctic Ocean in action.



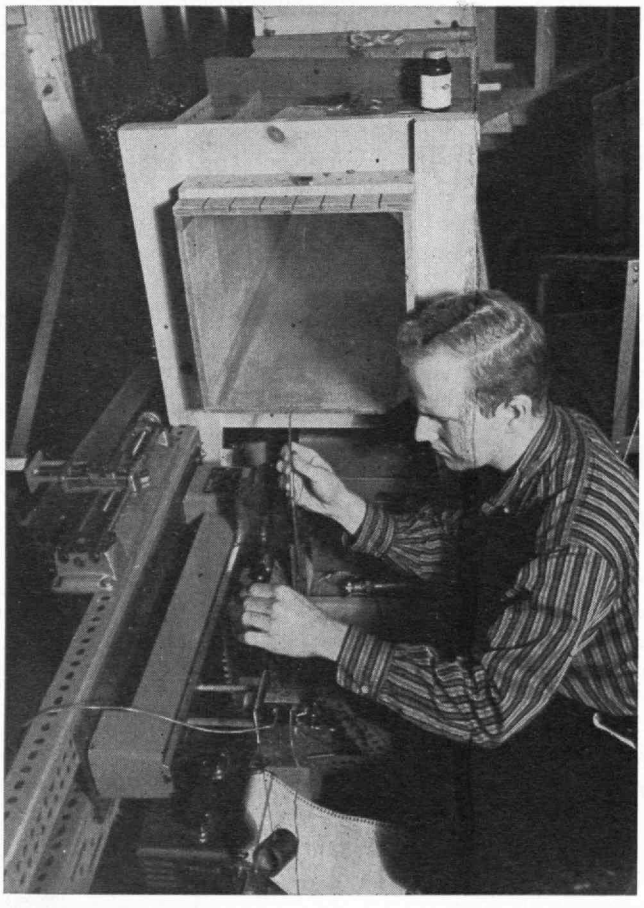
John Lockie examining a wind tunnel with his manometers.



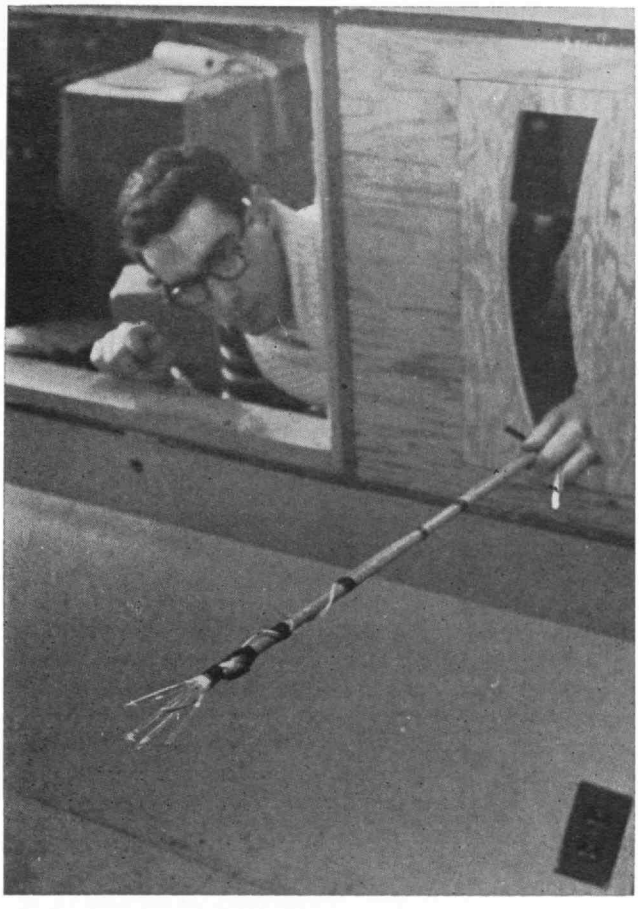
Stathatos and Adractas studying a hydrofoil in the pool.



R. W. Matlin studying a threat to pressurized aircraft.



Howard F. Little surveying air flowing out of the tunnel.



Kenneth Klein and glass hand that measured gusts of wind.

New Books

THE MEANING OF COMMUNISM, by William J. Miller, *in association with Henry L. Roberts and Marshall D. Shulman (a Time, Inc., work published as a textbook by Silver Burdett Company, and distributed in stores by Simon and Schuster, Inc., $3.95), is reviewed here by Herbert Ritvo of the Center for International Studies at M.I.T.*

THERE has been no greater contrast in the educational systems of the two chief ideological opponents of the post World War II period than the time and effort that Soviet schools allocate to a Marxist-Leninist analysis of capitalism and—until recently—the almost total neglect of the study of communism in American classrooms. In the Soviet Union, indoctrination of students with the official propaganda line about capitalist society begins in first-grade primers and continues through the secondary schools. In the United States, McCarthyism and its ultraconservative imitations have kept qualified educators from venturing into this explosive area. Rather than risk the consequences of "un-Americanism" charges, those responsible for school curricula have left an intellectual vacuum which too often has been filled by the virulent and vulgarized anticommunism of the mass media.

Strangely enough, the results of prolonged classroom confrontation with "capitalism," on the one hand, and the refusal to discuss communism in the schools, on the other, have been strikingly similar. The dogmatic distortions of the compulsory courses throughout the Soviet Union have left generations of students with a completely perverted image of capitalist society, comparable in many respects to the grossly inaccurate caricatures of communism absorbed by their pre-college contemporaries under the free enterprise system.

In both countries the search for more realistic appraisals of the opposing systems is well under way. Since 1956 Soviet propaganda has applied a series of correctives to the Stalinist stereotypes of a social system allegedly doomed by dogma to degeneration and decay; since Sputnik I in 1957 there has been an increasing awareness in the United States that high school teachers can no longer evade explaining the relationship between communism as a doctrine, the development of the Soviet Union as a nation-state, and the growth of the international communist movement.

The correctives applied have been consistent with the political heritages of the two countries. In the totalitarian state the Party leaders have simply ordered uniform doctrinal adjustments. These have produced some confusion and considerable delay in the preparation of standard texts. Moreover, the slightly modified view of capitalism now propagated by Moscow has involved the once unchallenged center of world communism in a verbal conflict with its greatest ally—China.

Under the U.S. system, Soviet-type uniformity is, of course, impossible to achieve domestically; it cannot even be contemplated as a subject for discussion among allies. The frequently bitter controversies concerning the best methods of teaching about communism remain purely matters of local state politics. The polemics provoked by these debates within individual communities are often as heated as the arguments between the two communist giants, but the international impact has been inconsequential.

The decisive factor in the endeavor to give American youth an adequate understanding of the complexities of communism will be the quality of the textbooks. *The Meaning of Communism* by William J. Miller, in association with Henry L. Roberts and Marshall D. Shulman, two specialists on Soviet affairs, has set a standard of excellence which successors will find difficult to surpass. Despite many omissions which can readily be noted by specialists, this study is a suitable introduction for teen-agers, teachers, and parents. The authors have combined competent scholarship, keen insight into doctrine, and a clear style to trace communism from its ideological roots in Western Europe to its branches throughout the world a century later.

In less than 200 pages, with many interesting photographs and helpful charts, but unfortunately too many reproductions of poor paintings, this skillful analysis can be used either to provide material for a special six or eight weeks' course or as supplementary reading in related subjects. The make-up is attractive, the entire text is logically divided, and individual chapters are well organized. After a brief introductory essay (pp. 7-13), which reasonably presents the case for studying communism, there is an exceptionally lucid explanation of "The Idea: Karl Marx and His Revolutionary Theory" (pp. 14-29), and an interesting presentation of "The Organization: Lenin and the Communist Party" (pp. 30-65). "The Result: Hardening of the Communist Dictatorship" (pp. 66-93), "The Goal: World Triumph of Communism" (pp. 94-127), and "The Reality: Life under Communism" (pp. 128-169) are handled so objectively and dispassionately that the authors' commitment to and confidence in democracy are given additional emphasis in their conclusions on "The Challenge: What We Can Do" (pp. 170-183). The reviews of the individual chapters, including questions on the text, subjects for discussion, and suggestions for other outside activities, seem, in many cases, more appropriate for college than high school students. The chronology and recommended readings are adequate, the glossary and indexing are superior.

There are, of course, several cases of oversimplification and in many instances the proportioning of the selected material is open to question. Although the purpose of the book is clearly the exposure of the evils and threat of communism as a political system and international movement, there is no belaboring of this aspect or embellishment of capitalism. For some, nevertheless, it may seem to be a discussion of communism and capitalism as absolute alternatives with insufficient account taken of the generally accepted positive aspects of socialism in most parts of the world beyond the United States. Whatever reservations are made, from the right or left, however, this book provides a perceptive appraisal and comprehensible definition for beginners—of all ages.

(*Book News is concluded on page 55*)

Technical Information, Please!

A semiautomatic system of retrieving literature to meet each individual's needs is the goal of an M.I.T. Libraries project

BY M. M. KESSLER, '39

THE OUTPUT of scientific literature is growing at a hyper-exponential rate. In the last 10 years it has doubled, and the rate of growth is increasing. At its present rate of growth the output will double again in seven or eight years.

The increase in the need to know is even more significant, however, than that in the number of pages published. More and more people need scientific information for the effective performance of the duties that society has assigned them. Scientific information is the raw material for industrial growth. It has become the very coin of diplomatic exchange, a major item of international trade, and the very instrument of national power.

Private communications and directed messages account for only a small part of the information traffic between scientists. The bulk of the information is broadcast. It is up to each scientist to examine this broadcast literature and retrieve those items that are meant for him. The massive increase in the number of papers, articles, reports, theses, etc., makes this selecting process exceedingly awkward and time-consuming.

A semiautomatic system to match the information content of the literature to the information needs of the working scientists is needed. It should be a process by which a subgroup of printed matter could be recognized as having a particularly high probability of matching the needs of a given scientist or group of scientists. The final selection then could be left to the judgment of the reader.

One can imagine such a system being asked a group of questions, not only (or even primarily) to obtain answers but also to type the asker. The logic of the system would operate on the questions and conclude from the questions that a certain group of papers and documents would be likely to interest the questioner. Some machine-aided coding or indexing scheme is needed that can sort scientific documents into groups such that the probability of match to a user would be optimized.

It is not likely that this problem can be solved within the confines of a single industry or laboratory, no matter how large. It is a problem for the entire scientific community, and the solution should supplement, not replace, the efforts of individual scientists and technical librarians.

A Model for Tests

The Technical Information Project of the M.I.T. Libraries, sponsored by the National Science Foundation, has undertaken the development of a pilot information system of this type to operate within the scientific and technical community in Boston. This model may have some immediate utility from the start, but its primary function will be to provide a realistic test environment wherein new ideas, components, and systems may be evaluated.

Although we do not know the exact form that such a system will assume, it is clear that modern communications and computer technol-

The Service Envisioned

IN A RECENT test of an automatic system for the retrieval of technical information, a scientist made the following request: "Here is an article that interests me; search the literature and find others like it."

The article was entitled "Formulation of the General Theory of Relativity" and appeared in *Physical Review,* Vol. 97, p. 212. The literature to be searched consisted of 8,186 papers published in 36 volumes of *Physical Review.* Within five minutes the computer system produced the following list of articles and their locations:

1. "A Quasi-Relativistic Theory of Gravitation," Vol. 89, p. 587.
2. "Use of the Flat-Space Metric in Einstein's Curved Universe and the 'Swiss-Cheese' Model of Space," Vol. 98, p. 793.
3. "Cosmic Time and Field Equations of General Relativity," Vol. 104, p. 831.
4. "Ether Drift and Gravitational Motion," Vol. 104, p. 1791.
5. "Space-Time Structure of a Static Spherically Symmetric Scalar Field," Vol. 107, p. 1157.

The close relation between the titles of the papers retrieved and the test paper is clear.

This is but one of many hundreds of similar retrieval problems handled by an IBM 709 computer at M.I.T. The development of such a system is still in progress and several different automatic search schemes are being investigated.



MYER M. KESSLER, Director of the project described here for Review readers, was mainly concerned until 1959 with determining the properties of microwave radars over such reflecting media as earth and water, and the design and evaluation of weapons and detection systems. He was born in Russia, has two M.I.T. degrees, a doctorate in physics from Duke University, and has taught at Brandeis. He was in the M.I.T. Radiation Laboratory for three years and later on the staff of Lincoln Laboratory.

ogy will play a leading role in its development. Memory units, input-output devices, fast printers, etc., are among the tools that will surely be used. These hardware components are being developed for other reasons and one can normally expect a healthy flow of new and improved devices from the various industries and laboratories engaged in this work. But research and invention are critically needed in the "software" that is required in order to take advantage of this hardware.

The raw materials at our disposal are:

a) The entire scientific and technical literature, past and present;

b) The scientific and technical community; and

c) Communication and computer systems and associated devices.

Out of these we must:

a) Delineate a working literature;

b) Invent schemes and methods for processing this literature; and

c) Develop modes of interaction that will allow scientists to use the operating schemes on the working literature conveniently and usefully.

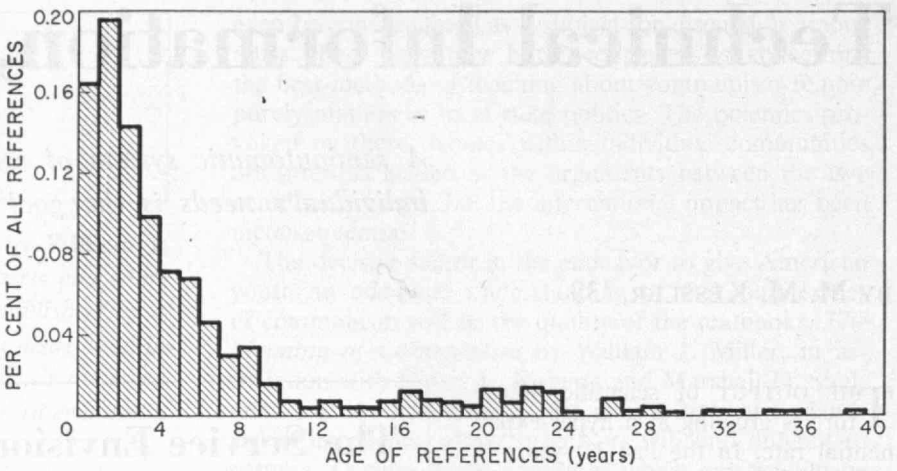
These latter items are prerequisite to system design, and the M.I.T. Technical Information Project has been preoccupied with them for the last year.

The Working Literature

Suppose, by way of example, we wish to construct an information system designed to serve the community of physicists. What material must this system have in store and examine in order to be functionally useful? All the literature of all time? Clearly it is not practical to examine the physics journals of all nations and all languages. What journals, then, and for what length of time, should be considered part of the relevant literature of a working physicist?

To seek an approximate, although not ideal, answer to this question we have examined more than 175,000 references in papers published by physicists, largely in *The Physical Review*. We have assumed that this reference literature is a close approximation to the working literature of physicists, and have drawn some interesting conclusions from our study of it.

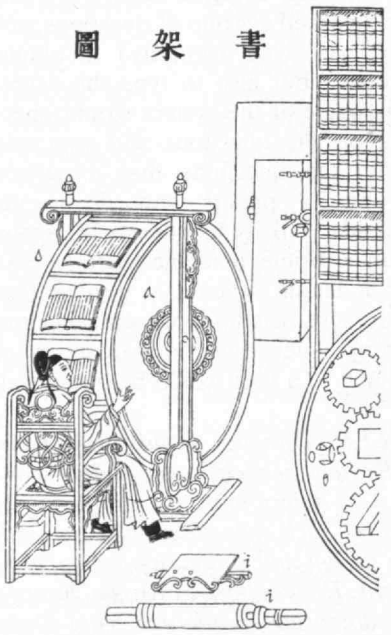
Although close to 1,000 journal titles served as reference sources in this study, some 50 titles accounted for 90 per cent of all the references; several hundred titles were found but once in the entire literature examined. Such a pattern was found regardless of the particular journal being examined; and appeared to be independent of language, geography, or political sphere of influence.



References in "The Physical Review" to previously published papers suggest that the useful life of most scientific reports is quite short.

American physics journals, our research indicates, are the chief source of information not only for other Americans, but for the international community of physicists. The Western world is virtually self-sufficient with regard to physics, and the Russian cultural sphere draws heavily on the West for information.

The average useful life of a scientific paper has been found, moreover, to be only 10 or 12 years. Five years after publication in *The Physical Review,* 60 per cent of the papers have been quoted only four times or less by other authors in *The Physical Review* and 15 per cent have not been mentioned even once.



A scholar's wheel as shown in an old engraving that the Council on Library Resources has reproduced.

Findings such as these have to be investigated in great detail in order to set proper bounds to what we mean by the "working scientific literature." Then, in order that a group of scientific papers reach the proper population of readers, both the papers and the readers must be addressed (indexed) in a language that allows matching of one to the other.

To be practical for machine use on a large scale, the indexing scheme must satisfy rather rigid requirements:

a) It must be automatic and independent of expert readers and judgment;

b) It must allow for a graded scale of relatedness;

c) It should be selective with regard to time (i.e., it must not retrieve papers all the way back to Newton); and

d) It should allow for interaction between the reader and his literature with a minimum dependence on middlemen.

The fact that one such scheme has been developed and successfully tested at M.I.T. gives us hope that these conditions can be met.

Even if given a rational scheme for choosing working literature and a processing program that successfully retrieves relevant information, we will still face the problem of how to

(Concluded on page 52)

educational television:



help for busy teachers
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Today, education in America faces a severe challenge. An accelerating world requires new and broader curriculums. An expanding population begs for more teachers, more classrooms.

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Edited by H. E. Lobdell, '17

25 Years Ago

IN MARCH, 1938, upon the recommendation of two Visiting Committees of the Corporation, a decision was reached to discontinue two Institute Courses—Electrochemical Engineering and Mining Engineering—upon the graduation of the present sophomores in June, 1940. Said the announcement:

"The substance of the Course in Electrochemical Engineering has been, and still is, an extremely valuable factor in the field of technology. In view of the low registration in the Course, however, and because of the expanding opportunities for the application of the methods of electrometallurgy and electrochemistry to both science and industry, the Visiting Committee urged that the advantage of training in these subjects be brought to a much larger circle of students.

"The Department of Metallurgy, therefore, will assume the responsibility for providing that all its students are adequately trained in electrometallurgy, both electrothermic and electrolytic. The Department of Chemical Engineering has been asked to undertake that part of the instruction and research in this field concerning substances other than metals. . . ."

With respect to the Course in Mining Engineering, its Visiting Committee "emphasized the trend in the mining industry to demand engineers with special training in physics, chemistry, and geology, as well as in economics and business administration."

But its studies showed "mining schools in the great mineral states adequately fill the local demand for men trained in the practice of mining operations, whereas the specialized curricula of mining departments of eastern universities have become relatively less significant or have been discontinued entirely.

"The Institute's Department of Mining has had a very distinguished history . . . The changed circumstances of the present day indicate, however, that the best use of the Institute's facilities in training in the general field of the discovery, recovery, and processing of minerals calls for a change of emphasis and a broader approach. . . .

"The Department of Metallurgy plans to pay special attention to the subject of ore dressing, and the Department of Geology [proposes] extension of its work on mineral resources, placing special emphasis on the scientific phases of this important field."

¶ At the 90th annual meeting of the Boston Society of Civil Engineers, *Karl R. Kennison, '08,* and *Charles R. Main, '09,* were elected, respectively, as President and as Treasurer.

50 Years Ago

ON MARCH 12, 1913, the Corporation elected three new Life Members: *Theodore N. Vail,* President of the American Telephone and Telegraph Company; *William Endicott, Jr.,* a member of the firm of Kidder, Peabody and Company; and *Everett Morss, '85,* President of the Simplex Wire and Cable Company. *Francis R. Hart, '89,* was elected Treasurer of the Institute as successor to his classmate, *William B. Thurber, '89,* who resigned.

75 Years Ago

PRESIDENT Francis Amasa Walker, in referring to the standard of scholarship at the Institute, declared:

"The main fact regarding the Institute of Technology, that which renders possible such work as is done here, is the predominant character and spirit of its scholars.

"This is not to deny credit to the Faculty of today or of the preceding time, since, although the nature of the studies and exercises pursued contributes in an important degree to the result, that result could have been obtained only through years of patient, careful, persistent, courageous effort on the part of the teachers in raising and maintaining the standard of scholarship; in creating a public sentiment within the school favorable to manly endeavor, repugnant to foppery, extravagance, triviality, and indolence, and even in educating a wide constituency outside the school, so that our pupils come to us, as a rule, prepared to acquit themselves like men, neither expecting nor desiring any other way of life."

¶ Varia culled from current columns of *The Tech*: "We do not wish to 'nip in the bud' literary aspirants, but the inherent bacteria of some contributions destroy them before they have grown to the 'full and perfect leaf.' . . . Fire apparatus is springing up like mushrooms in every corner of the new building. . . . Perhaps it may not be necessary to explain to '91 that the fire buckets are neither intended for spittoons nor waste-baskets."

¶ *The Tech* also reported that "the second-year architects are to test the air and ventilation of Trinity Church and the various theatres and halls of the city. They all have to take two bottles with them, to get specimens of the air. Those who do Trinity will sit through the sermon sucking air into the bottles, the others will have a bellows."

88 Years Ago

ON MARCH 17, 1875, in the Institute Building at 491 Boylston Street, Boston, 23 graduates assembled to perfect the organization of the Alumni Association.

100 Years Ago

ON MARCH 7, 1863, the Finance Committee of the "Government" of the Institute issued an earnest appeal for contributions to complete the raising of the guaranty fund of $100,000 as stipulated in the Charter Act signed by Governor John A. Andrew on April 10, 1861. The Act had set one year as a time limit, but on April 25, 1862, the General Court had granted an extension of an additional year.

By the end of March, 1863, however, less than $40,000 had been subscribed, and it was feared that it might be necessary to petition the General Court for a second extension of time. Fortunately, an unexpected and generous contribution in early April precluded the necessity for such a petition.

NEW ENGLAND LIFE'S GORDON T. HAY, JR. (NORWICH UNIVERSITY '49), WITH HIS CLIENT, DAVID W. AMBROSE (HARVARD '48; L.L.B. BOSTON UNIVERSITY '52), REAL ESTATE MANAGER OF C. A. CROSS CO. FITCHBURG, MASS., A WHOLESALE FOOD DISTRIBUTOR, IN ONE OF THE COMPANY'S NEW "SUPER SAVE" SUPERMARKETS.



Does this man's experience in selling give you an idea?

Gordon Hay was fed up.

He had been selling for a leading petroleum company for 11 years and was making good money. Though he was successful, he wasn't satisfied.

The future bothered him. He was tired of being transferred from one city to another, and of having his quota raised every time he won a contest. Basically, he was fed up with having the Company tell him where he would live and how much he could make from one year to the next.

So in 1961 Gordon Hay joined a general agency of New England Life in Worcester, Massachusetts, an area he was familiar with and liked. Six weeks later he had sold a quarter-million dollars of life insurance. Just recently he was named to New England Life's Hall of Fame and Leaders Association.

At long last he, his wife and three children have been able to put down roots. Things look different now to Gordon Hay. "I'd break my neck to stay in this business," he says.

Does Mr. Hay's experience suggest that this can be the sort of rewarding and satisfying career you'd be interested in? If so, you can learn more about such a career as well as the particular advantages of associating with New England Life by writing to Vice President John Barker, Jr., 501 Boylston Street, Boston 17, Massachusetts.

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Herbert L. Neitlich, '49, Boston

Worthy of your consideration . . .

SCIENCE, TECHNOLOGY, AND MANAGEMENT

By FREMONT E. KAST and JAMES E. ROSENZWEIG, both of the University of Washington. 384 pages, $7.95.

A symposium stemming from the National Advanced-Technology Management Conference held in Seattle in conjunction with the Seattle World's Fair in 1962. The book is concerned with the problems of managing very large and complex advanced-technology programs, from their inception to the operation of the end products. Important contributors to the book include such people as General B. A. Schreiver (Air Force Systems Command), Vice-Admiral W. F. Raborn (Director, Special Projects Office), Charles Ames (Vice-President, General Dynamics—Astronautics Company), and Simon Ramo (Vice-Chairman of the Board, Thompson-Ramo-Wooldridge Corp.).

THE THEORY AND MANAGEMENT OF SYSTEMS

By RICHARD A. JOHNSON, FREMONT E. KAST, and JAMES E. ROSENZWEIG, all of The University of Washington. 368 pages, $8.50.

Book proposes a philosophy in the concept of managing by system, and relates systems theory to business and industry within a general framework. Part I is devoted to the development of a theoretical framework for systems management. Part II illustrates and analyzes the concepts and theories developed in Part I and carefully explains many of the newer applications and major innovations in the systems concept. Part III discusses design and implementation of systems and includes a review of applicable techniques such as mathematical programming, simulation, and network analysis. Part IV traces the evolution of the systems concept and evaluates the role of systems management in the future.

ELECTRONIC PROCESSES IN MATERIALS

By LEONID V. AZAROFF, Illinois Institute of Technology; and JAMES J. BROPHY, Armour Research Foundation, Illinois Institute of Technology. Available in March, 1963.

A junior-level text for courses in materials science, for electrical engineering materials, and for solid state physical electronics. It provides a fundamental presentation of the structure and the properties of materials. The presentation is unified and sound; it emphasizes the fundamental principles and theoretical basis for a wide variety of phenomena and avoids the error of trying to deal with devices in a detailed way. The book presupposes a familiarity with the elements of chemistry, physics, and calculus.

MATERIALS FOR MISSILES AND SPACECRAFT

Edited by EARL R. PARKER, University of California, Berkeley. University of California Engineering and Sciences Extension Series. Available in April, 1963.

Materials problems limit progress in the field of missiles and spacecraft design probably more than in any other manufacturing area at this time. This graduate-level book presents a coordinated analysis of such problems. The fourteen chapters of the book were written by experts concerned with the selection and use of materials for rockets and missiles. The discussions are related to structural and propulsion problems, with little emphasis on electronic components of guidance systems. The emphasis is principally on materials and mechanics.

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330 West 42nd Street
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Mr. Webster's "Who's Who"

(*Concluded from page 15*)

Venturi meter, the Gooch crucible, the Fowler flap or the Pupin coil. In these instances we see essentially practical devices merging by stages with processes and phenomena of more theoretical importance.

Processes and phenomena such as the Grignard reaction, the Crookes tube, the Marsh test or the Haber process might be classified in something of the same rank order as the named diseases (Parkinson's, Bright's, Hodgkin's, and the rest). Named points of topographical anatomy such as the Eustachian tubes, McBurney's point, and Weber's corpuscle strictly belong with species names, being parts of a species, with the same replicability. Here also belong named bacilli such as those of Hansen, Welch, and Ricketts. On a simpler level would be scales such as those of Fahrenheit or Celsius.

When we move into the general area of "effects" we find a range of phenomena which often were puzzling at first, and which later fell into place as parts of a larger conception. The name memorializes the man who had enough insight to be puzzled. Even the Doppler effect at some initial stage must have been puzzling, as were the Compton and Zeeman effects, and Brownian movement. Closer to abstraction would be concepts such as Poisson's ratio or the Reynolds number.

At a higher level of abstraction are mathematical concepts such as Napierian logarithms, the Gaussian distribution, "spaces" such as those of Riemann, Euclid or Lobachevski, and algebras such as Boole's. Perhaps these would have to be ranked as wholly abstract, with no necessary connection with the physical world. Of principles, or the other hand, that do have such roots, "laws" such as those of Newton, Boyle, Hooke, Henry, or Gay-Lussac would stand high in generality. Somewhere near the apex in generality would be Occam's *razor,* which of course is not a physical principle at all, but lies in the realm of philosophy, if not of aesthetics. Yet it receives a kind of instinctive assent from most scientists.

In this era of popularity contests, no study of names in the dictionary would be complete without picking a winner. Apparently the largest number of entries for a scientist are the 30 for Roentgen and his compound words. The runner-up is Galvani with 24. Next in order come Volta (21), Faraday (17), Newton (16), Watt (15), and Ricketts, who ties with Pythagoras (13), and Darwin (12). It is interesting that we have to go down to number seven to find a biologist.

Finally, to end on a purely lexicographic note, it is a curious quirk of the 1961 Webster that there are over 64 "laws" entered under the heading "Law of . . .," while under *"theorem,"* only that of Pythagoras appears. Under the entry Pythagoras, however, only the Pythagorean *proposition* is listed. Of the 64 laws so entered, only six are "name" entries. These are the laws of Boyle (and Mariotte), Dulong and Petit, Weber-Fechner, Guldberg and Waage, Titius and von Baer. There is either an inconsistency or a very delicate distinction of usage which requires one to look up Gresham's law under "Gresham," while Boyle's law is entered under Law of Boyle. We leave the reader to choose and to explain, hoping that he, too, will be lured into exploring the forest of words.



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Ask any alumnus who's a Massachusetts Mutual policyholder. (And there are lots of them!) He'll tell you Mass Mutual is an outstanding company.

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If *your* job isn't pointing to the kind of future you feel you deserve, let us tell you more about a career with Mass Mutual. Just write a personal letter about yourself to *Charles H. Schaaff, President, Massachusetts Mutual Life Insurance Co., Springfield, Mass.* It could well be the most important letter you've ever written.

Some of the Eastern Group Alumni in the Massachusetts Mutual Service:

M. I. T.

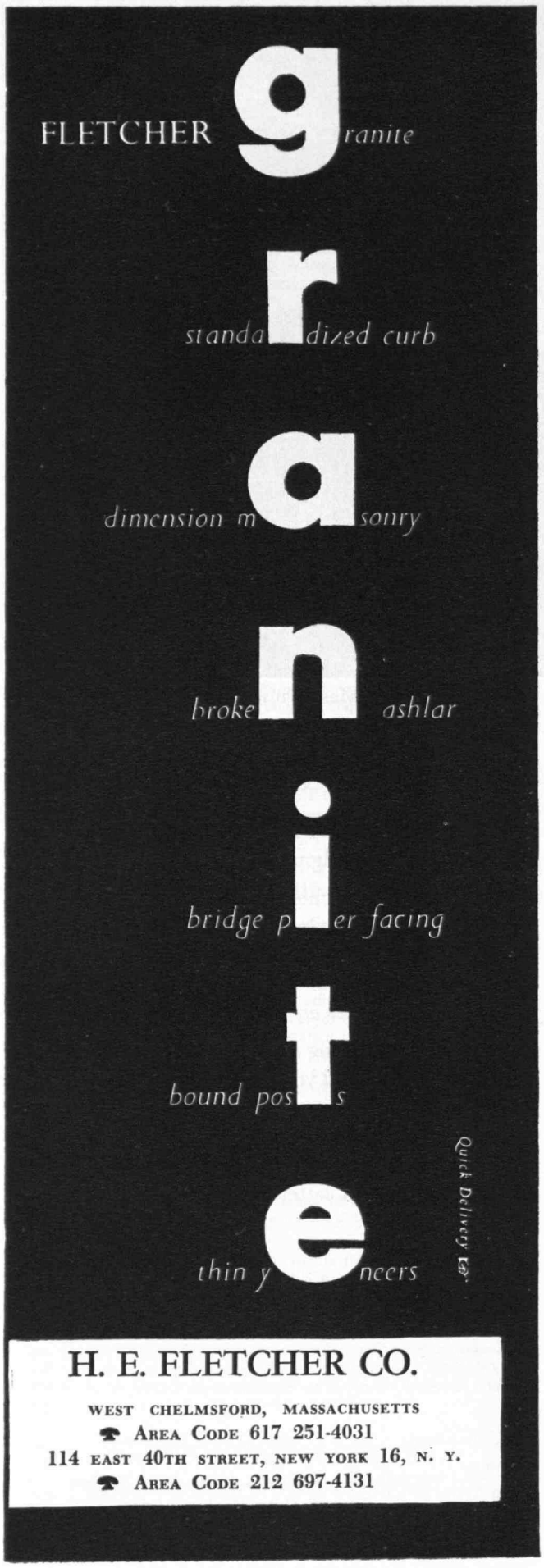
Lyman L. Tremaine, C.L.U., '23, New York
Harold G. Ingraham, Jr., C.L.U., '49, Home Office

LEHIGH

Russell E. Hoaster, C.L.U., '31, San Antonio
Edward Billstein, Jr., '40, Atlanta
R. Lester Dodson, Jr., '44, New York

LAFAYETTE

David B. Adler, C.L.U., '17, Orlando
Frederic F. Lawall, '22, New York
David K. Aldrich, C.L.U., '38, Allentown
Frank W. Hiller, '43, Home Office
Richard A. Faust, '56, Binghamton
Aman M. Barber, Jr., '59, Allentown
Cameron D. Warner, '61, Bethlehem



Trend of Affairs

(Continued from page 24)

A Plea for Self-Education

ENGINEERING TEACHERS should concentrate more on training students to think and less on imparting sheer knowledge, Professor Rene Miller of M.I.T. contended at the recent Institute of Aerospace Sciences meeting in New York.

"This training," he said, "can only be accomplished by the student himself at his desk through painful and intensive mental exercise, solving difficult problems and deciphering by his own effort complex analytical expositions. To this end I believe that lectures should be more formal, with less student participation and, where a text is available, that the lecturer should concentrate on providing the emphasis and inspiration which a textbook cannot provide . . .

"Clearly the instructor must be available to the students outside of class hours to help the less analytically gifted to understand the more difficult derivations. This help, plus the use of searching examination questions requiring analysis rather than a simple repetition of class demonstrated numerical operations, will ensure that the student develops the analytical derivations left to him to complete."

Professor Miller said many engineering educators accept uncritically the idea that the goal of education is the imparting of knowledge and therefore "the more knowledge that can be absorbed by the student in a given time, the better the education." With science and technology exploding, the knowledge that any engineering school can impart to a student is at best transitory, but "the thought processes which we develop in his mind will last him a lifetime."

Professor Miller said a student often thinks he can't know a subject unless he takes a course in it "which is another way of saying that he has not been shown the way to self-education," and continued: "Yet this is the only educational process which can exist once the school years are past and the only way in which an engineer can keep abreast of his profession. Our aim should not be to produce a good learner who can pass examinations in neatly bound educational packages, but rather a good doer, a 'self starter,' a creative engineer."

Physicists Study Photon Beams

MORE THAN 300 physicists compared notes at M.I.T. in January on the use of high-energy accelerators in the study of atomic nuclei. Their attention was focused on beams of photons with energies of a billion or more electron volts. Such beams have come to play an increasingly important role in research as more and larger accelerators have been built. One of the newest and most powerful of these is the six-billion-volt Cambridge Electron Accelerator operated jointly by Harvard and M.I.T.

Professor Bernard T. Feld of M.I.T. was chairman of this international conference and the participants included Wolfgang Panofsky, director of the two-mile-long electron accelerator being built at Stanford, and the directors of laboratories in Switzerland, Italy, and Germany. Twelve foreign countries and all parts of the United States were represented.

(Concluded on page 42)



ART AND SCIENCE

ARTHUR SNYDER, a Vice President of the New England Merchants National Bank, applies the banker's art to aid the growth of many young companies in atomics, electronics, and other frontiers of science. Equipped with a solid engineering background of his own, plus an M. B. A. earned at Northeastern University at night, Arthur is particularly well qualified to serve these firms with financial aid and counsel.



"THE BASIC PROBLEM of these new companies throughout the country is rarely a lack of capital," Art Snyder remarks, "only a lack of experienced management." New England, however, is lucky to have many technical men who organize companies with a true awareness, first — of the critical need for effective management in four areas: research, sales, production, and administration; and second — of the availability of capital that such management is likely to insure.

"I LIKE TO GO where the excitement is," Art says. "There's a tremendous satisfaction in helping young, progressive companies to grow." If your firm could use the services of a company banker on your management team, why not ask Art Snyder to match his time with yours in exploring ways in which he and our Bank can be of help to you.

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G. R. Weppler '37

Trend of Affairs

(Concluded from page 40)

Items of General Interest

THE SUNDAY NEWSPAPER supplement *Parade* features a "Personality Parade" in which Walter Scott answers questions from readers. It included this item last December 16:

"Q. *I understand that a 'whiz kid' named Alain Enthoven is really running the Pentagon these days. Who is he?—O. Hans, Jacksonville, Fla.*

"A. Alain C. Enthoven, 32, Seattle-born economist, is Deputy Assistant Director of Defense in the comptroller branch. Stanford graduate, Rhodes scholar, a doctor of philosophy from M.I.T. ['56]—Enthoven is an appointee of Defense Secretary McNamara. He is working on integrating three major elements in the defense program: needs, costs and effects."

Less terse items about M.I.T. people in the news this winter have included Daniel Lang's two-part profile of Professor Jerome B. Wiesner in *The New Yorker* (starting January 19) and Joe David Brown's "A Big Man Even in Big D" about Clinton W. Murchison, Jr., '44, in *Sports Illustrated* (January 21).

Recent articles by Alumni have included "The Ships of '73," in the *United States Naval Institute Proceedings* (January) by Rear Admiral Ralph K. James, '33; "Modern Radar" by Herbert G. Weiss, '40, in *International Science and Technology* (January), and "Loyalties," a discussion of management and research, by Lowell W. Steele, '52, in *International Science and Technology* (February).



DEFENDER

Scuba divers . . . on the job for General Motors. Project: underwater tracking-range experimentation to help improve our Navy's anti-submarine warfare capabilities. That's right—even here in the dream world of the sea, GM people have a job to do. National defense! Land, sea, air and space requirements like an underwater surveillance system . . . or vehicles to move soldiers and cargo over swampy jungle trails . . . or a mobile atomic reactor to provide electric power for remote combat areas.

Working on these defense problems now are microwave and electronics experts, nuclear and solid state physicists, acoustics, ballistics and mobility specialists. They're the GM defender team. But, of course, GM is many teams and a *great many people* . . . all working for you!

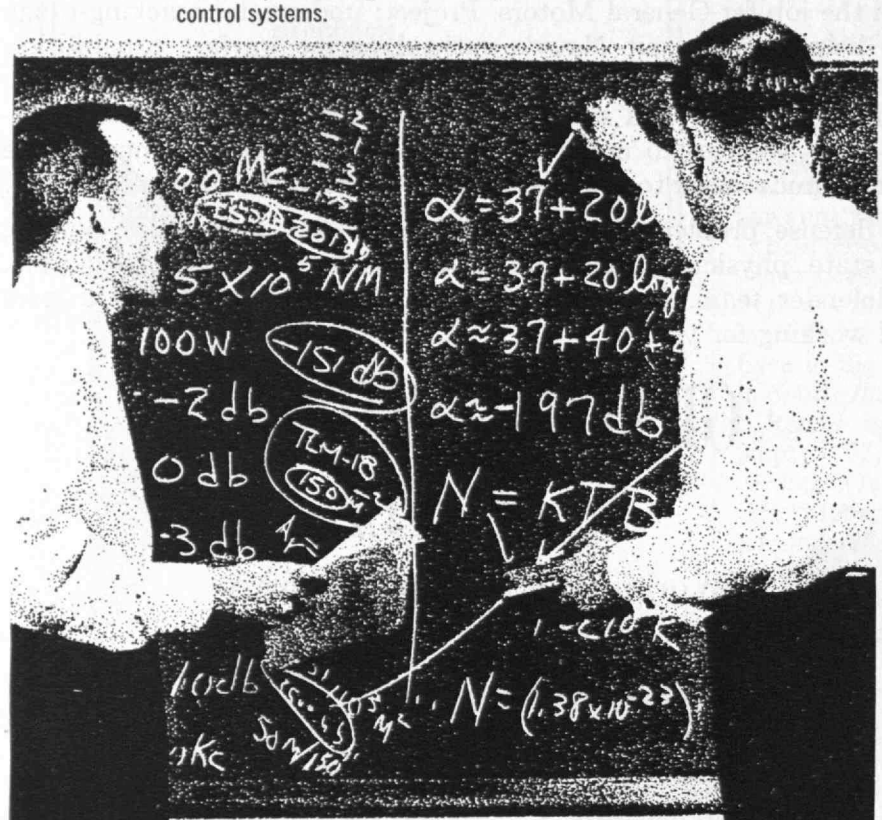
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MITRE, an independent nonprofit corporation, working with — not in competition with — industry, serves as technical advisor to the Air Force Electronic Systems Division, and is chartered to work for such other Government agencies as the Federal Aviation Agency.

Individuals Noteworthy

(*Continued from page 8*)

In Alumni Fund Post

KENNETH S. BROCK, '48, has joined the staff of the M.I.T. Alumni Fund to assist with reunion gift work and have primary responsibility for the development of programs to obtain special gifts on a regional basis.



Kenneth S. Brock, '48

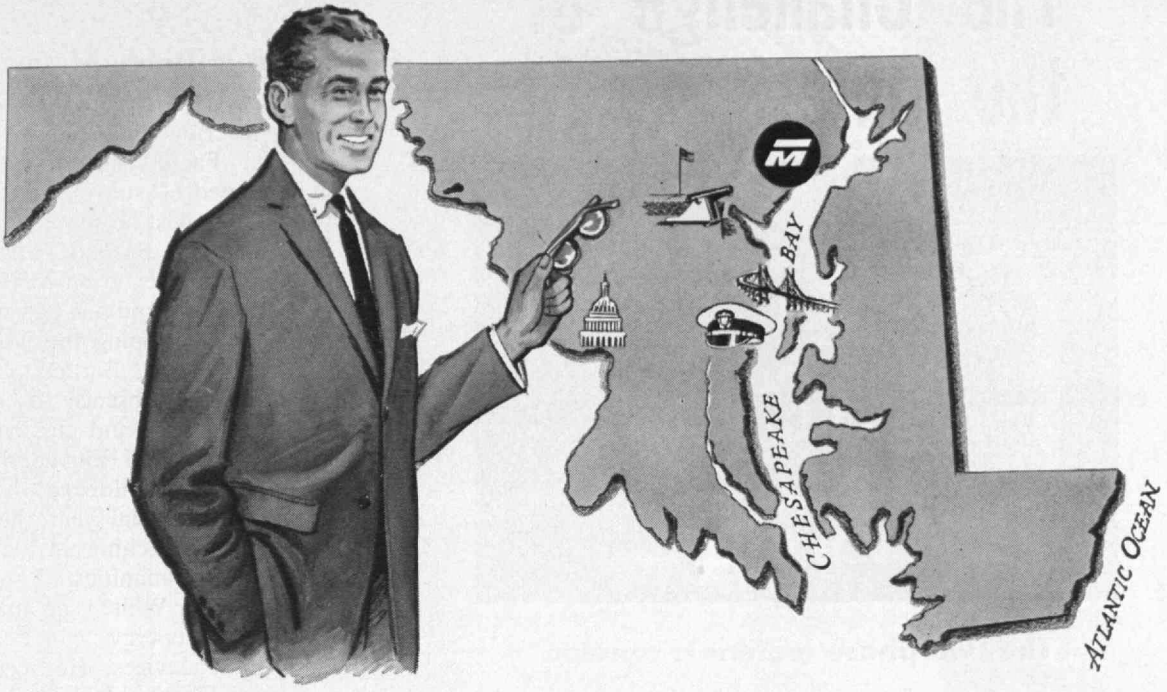
Mr. Brock is a native of Woburn, Mass., and a Course XV graduate. He organized M.I.T.'s first student Public Relations Committee and was its chairman for two years. He was also co-chairman of the 1948 Open House and engaged in many diverse activities as a student. Since graduation, except for military service, he has been engaged in sales and advertising, most recently as Sales Promotion Manager of Fenwal, Inc.

No stranger to alumni work, he has been a regular attendant at Alumni Council meetings and is class agent and chairman of the 1948 Reunion Committee. Mr. and Mrs. Brock have two children and live in Medfield, Mass.

Hershberg Fellowship

THE Schering Corporation has established a predoctoral fellowship at M.I.T. bearing the name of its director of chemical research and development, Emanuel B. Hershberg, '29, of West Orange, N.J. Dr. Hershberg played a significant role in revolutionizing the treatment of rheumatoid arthritis and other diseases and conditions.

(*Continued on page 46*)



MARTIN moves ahead in MARYLAND

The Martin Company, Aerospace Division of Martin Marietta Corporation, has openings for qualified graduate engineers and scientists in the fields of advanced space systems, electronic systems and products, and nucleonics.

With our extensive experience in these fields and with our highly skilled technological and scientific personnel, we are rapidly moving ahead on our scientific and classified projects at our Baltimore location.

As these programs increase—both in scope and in number—we need additional top-level scientists and engineers.

There are immediate openings for qualified applicants. Many of these openings are at the supervisory and senior technical level and many require advanced degrees.

Some of the assignments with Martin in Baltimore are in the following areas:

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- Aero-Physics
- Servo-Analysis
- Automatic Control Systems
- Celestial and Orbital Mechanics
- Radiation Heat Transfer
- Rocket Propulsion Analysis
- Elevated Temperature Structural Analysis
- Ablation Materials Engineering
- Reliability Engineering
- Telemetry-Data Handling Systems
- Communications Systems
- Guidance and Navigation Systems
- Launch & Control Systems

ELECTRONIC SYSTEMS AND PRODUCTS DIVISION

- ASW
- Guidance and Navigation
- Microwave
- Reconnaissance
- Command and Control
- Infrared
- Human Factors
- Solid State Circuitry
- Modern Packaging
- Data Processing

NUCLEAR DIVISION

- Energy Conversion
- Compact Reactors
- Shielding Analysis
- Nuclear Rocketry
- Plasma Physics
- Hazards Analysis
- Radiation Effects
- Metallurgy
- Solid State Physics
- Radiochemistry
- Facilities Design
- Marketing
- Magnetohydrodynamics

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experience to:

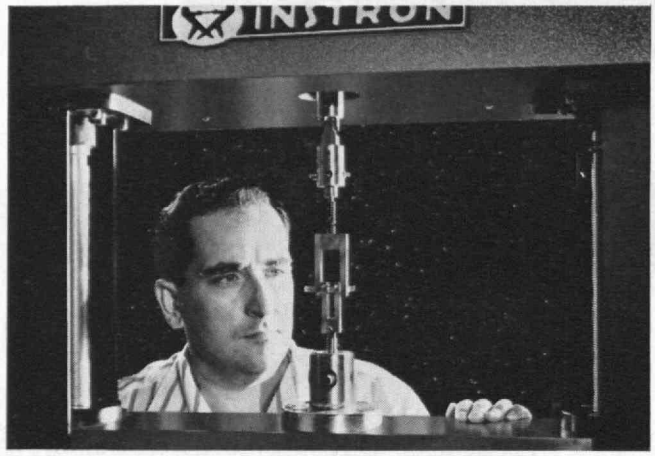
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Manager, Professional Employment,
Dept. T-10

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The Challenge of the materials age



The two-phase materials concept

In this sixth year since man's first probe of space — an age in which structural materials *must* do the impossible — attention is being focused increasingly on the two-phase concept of material structure. A two-phase structure is a combination of two different materials of contrasting strength and elasticity. The result is a composite which produces a material whose properties are superior to either of its components used individually.

Sounds like a great new idea? "Great" it is — but "new" it isn't. Nature had it first, millions of years ago.

The two-phase concept is at least as old as, say, bamboo . . . a natural two-phase material combining cellulose fibers of high tensile strength in a matrix of lignin, which serves to cement the structure and provide elasticity.

Filament-wound glass fibers are an example of artificial two-phase material, in which glass fibers are combined with epoxy resin to form a material whose specific strength is two and a half times greater than that of *any* homogeneous material, including metal, glass, or plastic.

In applying the two-phase principle to space applications, the extraordinary properties of single-crystal filaments — (more informally called whiskers) as reinforcing agents, is attracting more and more attention. Whiskers are among the strongest materials known. Some are capable of withstanding stresses of several million pounds per square inch. And happily, some of them tend to retain much of their strength at very high temperatures.

Much of the exploration now being conducted on the problem of two-phase materials is being carried out with the aid of Instron equipment.

Instrons are sensitive and highly accurate testing instruments suitable for broad range of stress-strain studies. These include not only studies on single whiskers and high strength alloys, but in such areas as high polymer rheology, refractory metals and ceramics, textile fibers, and biological tissues.



For a detailed study of current research in the development of two-phase materials, we invite you to write for your free copy of Bulletins C-3 and PC-8 — examples of a series of application studies compiled by Instron from independent sources covering virtually every area of materials research. For bulletins describing late technical developments in your specific fields, please feel free to drop us a line.

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Electronic and Mechanical Engineers — If you are interested in designing instrumentation for this new and fast growing science, please send us your professional resume.

Individuals Noteworthy

(Continued from page 44)

Burton House Master

DAVID C. WHITE, Ford Professor of Engineering and a member of the M.I.T. Faculty since 1952, has been appointed Master of Burton House.

In this post he succeeds Professor Howard R. Bartlett, who became the first master of an M.I.T. dormitory in 1958 and has played a major role in developing the housemaster plan. Professor Bartlett plans to go on leave of absence to consult on administration and curricula at the Berla School of Engineering at Pilani, India. Following this service and a sabbatical year, he will resume his teaching in the Department of Humanities.

Professor White is an authority on electrical energy conversion and magnetic devices. He received the George Westinghouse Award of the American Society for Engineering Education in 1961 for his teaching.

Honors to Alumni

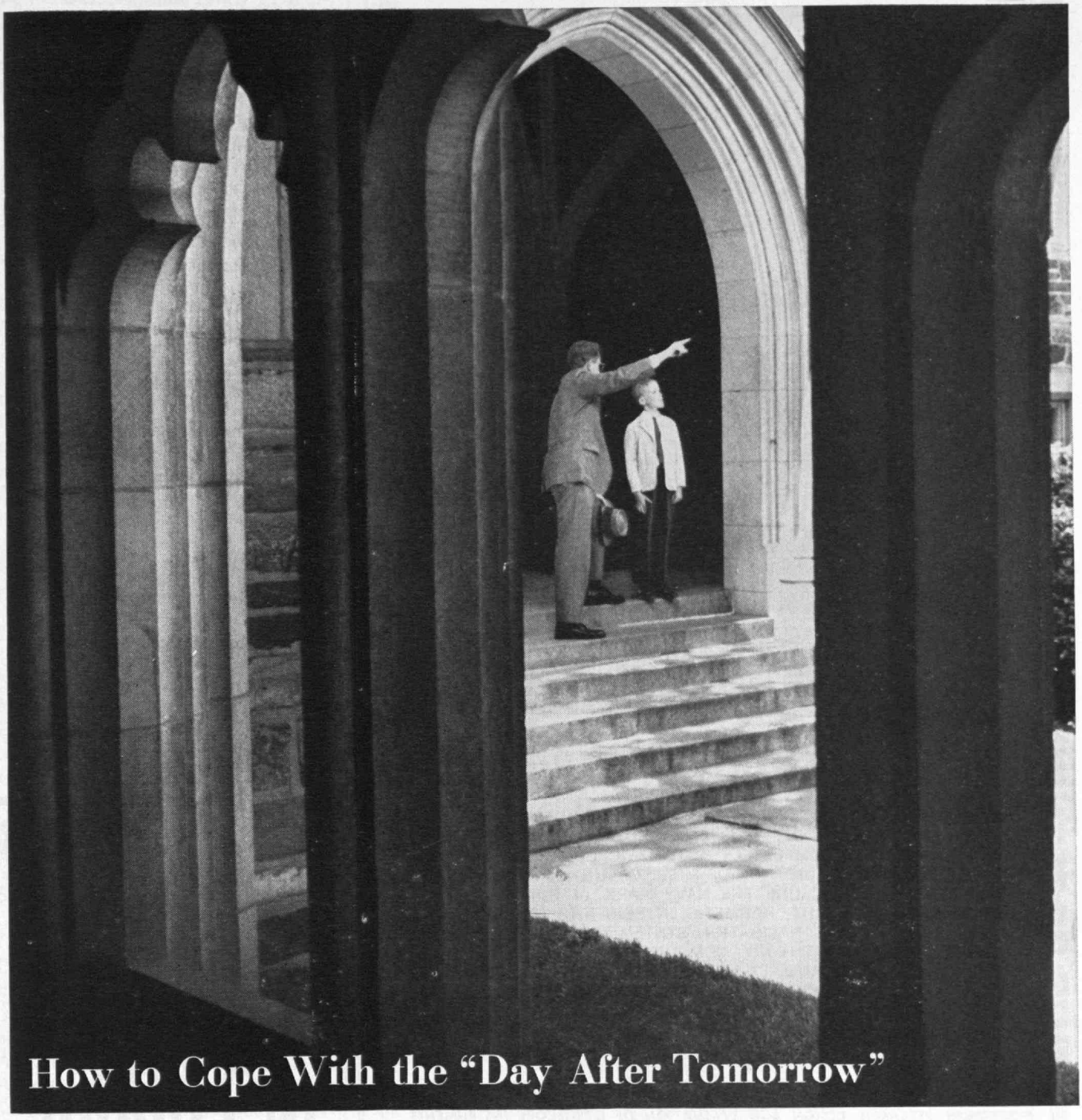
RECIPIENTS of recent awards and similar distinctions have included:

Welles Bosworth, '89, the gold medal of honor, Société des Architectes diplômés par le Gouvernement; and Citizen of Honor, with bronze medal of the city of Reims and also of the city of Vaucresson, France . . . *Joseph W. Barker, '16,* the Kettering Award for 1962 by the George Washington University Patent, Trademark and Copyright Foundation . . . *Harold F. Smiddy, '20,* Honorary Membership in Mu Gamma Tau by the Beta Chapter of the National Honorary Fraternity in Management;

Charles S. Draper, '26, the 1962 Louis W. Hill Space Transportation Award by the Institute of the Aerospace Sciences . . . *B. Sumner Gruzen, '26,* and *Jordan L. Gruzen, '57,* respectively, as Head and as Project Designer, Kelly & Gruzen —the Design Award by *Progressive Architecture* magazine for New Jersey's Medium Security Prison;

Clarence J. LeBel, '26, Honorary Membership in the Audio Engineering Society . . . *James B. Fisk, '31,* the 1963 Industrial Research Institute Medal . . . *Francis L. Friedman, '49,* posthumously, the Oersted Medal by the American Association of Physics Teachers.

(Concluded on page 48)



How to Cope With the "Day After Tomorrow"

A visit to your *alma mater* with your child can trigger some deep thinking about the "day after tomorrow" when all or part of the cost of sending him to college will be upon you.

This is an expense that has to be met. Doesn't it make sense to get started early? It seems logical that the more time you give yourself for accumulation—although there is no assurance you will gain your objective—the easier the job will be.

Consider these facts: The average cost of a year at college has more than doubled since 1940. Tuition rates have increased at an even greater rate than day-to-day living expenses. College costs could be higher still when the time comes for you to pay them. If you earn $10,000 a year, file a joint tax return and have two children, approximately 30% of your after-tax income would be spent for *one year* of college.

We have developed a College Plan which explains the risks, costs, and advantages of using Mutual Funds and other securities as a means of doing something today about tomorrow's college expenses. We'd like to send it to you, without obligation. Simply mail the coupon.

Gentlemen: Please send me complete information on your College Plan. I could make an initial investment of:

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Individuals Noteworthy

(Concluded from page 46)

New Posts

NAMED in the news of promotions, elections, and appointments recently were:

Bertrand A. McKittrick, '23, as a Director, Union National Bank of Lowell . . . *Charles A. Thomas, '24,* as a Director, Washington University . . . *Robert S. Chidsey, '26,* as City Engineer, Torrington, Conn.;

B. Sumner Gruzen, '26, as National President, American Technion Society . . . *Frank Marcucella, '27,* as a Director, Lawrence Memorial Hospital, Medford . . . *Clarence L. A. Wynd, '27,* as Executive Committee Member, Eastman Kodak Company;

F. Rolf Morral, '32, as a Member, Inter-American Relations Committee, American Society for Metals . . . *Gilbert W. King, '33,* as Vice-president and Director of Research, Itek Corporation, Lexington . . . *Richard S. Morse, '33,* and *George F. Clifford, Jr., '48,* respectively, as Chairman of the Board, and as President; *Courtland*

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D. Perkins, '41, and *Teddy F. Walkowicz, '41,* respectively, as a Member, Scientific Advisory Board, and as a Director—Cryonetics Corporation, Burlington, Mass.;

Robert C. Gunness, '34, as President, John Crerar Library . . . *Bernard M. Sturgis, '36,* and *Vladimir Haensel, '37,* respectively, as Chairman and as Treasurer, Petroleum Chemistry Division, American Chemical Society . . . *George A. Siegelman, '37,* as Corporate Director of Engineering, Olin Mathieson Chemical Corporation;

Richard S. Leghorn, '39, as President and Director, Perini Electronic Corporation, San Mateo, Calif. . . . *William K. Hooper, '41,* as Senior Vice-president, Republic Foil, Inc. of Danbury . . . *Clinton D. Cook, Jr., '42,* as Dean of Faculties, University of Vermont;

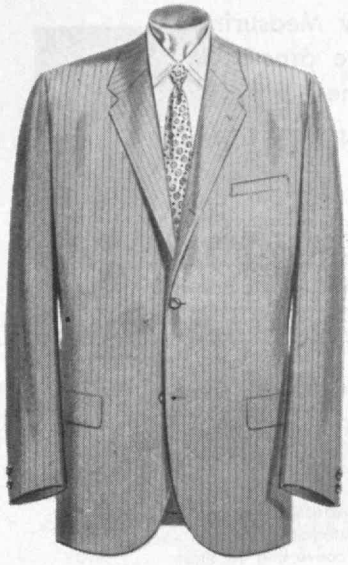
Charles S. Hofmann, '42, as Manager, Reactor Engineering Design, SAR Project, General Electric . . . *Harry E. Knox, Jr., '42, Paul H. Egan, '50,* and *George Jordan, '52,* respectively, as Director of Manufacturing, and as Managers of Marketing Services and of Market Development, U.S.I. Film Products, U.S. Industrial Chemicals Company;

Edward C. McClaud, Jr., '43, as Vice-president, Parker-Hartford Corporation . . . *Lorenzo B. Lea, '46,* as Assistant General Counsel, Standard Oil Company (Indiana) . . . *Roger P. Sonnabend, '46,* as Chairman, Trades and Professions Division, Combined Jewish Philanthropies of Greater Boston;

Robert A. Hawkins, '49, as Manager, Lowell Plant, Research and Advanced Development Division, Avco Corporation . . . *Frederick F. Sadri, '50,* as Senior Associate, J. N. Pease Associates, Charlotte, N.C. . . . *Alfred J. Kargl, '52,* as Engineering Manager, Food Processing Division, Emhart Manufacturing Company;

Joseph J. Shay, '54, as Technical Director, Pace, Inc., Wilmington, Del. . . . *George B. Raymond, '55,* as Assistant to the President, Raymond Engineering Laboratory, Inc., Middletown, Conn. . . . *William A. Sheppard, '55,* as a Research Supervisor, E. I. du Pont de Nemours & Company;

Laval J. M. Samson, '56, as Executive Vice-president, Terratech Ltd.



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in our traditional 3-button style, and our distinctive 2-button model

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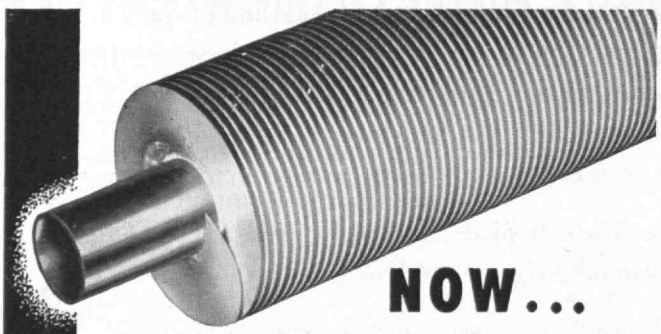
Starch Processes—A Recording Controlling Viscometer is used to automatically control starch cooking or enzyme converting to finish each batch accurately to the desired viscosity.

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ROBERT A. NORCROSS, '51

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Write for Bulletin S-55

AEROFIN CORPORATION
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Inter-American Civil Engineering

(*Concluded from page 26*)

technology. In fact, the two kinds of motives are so interwoven in this program, in its evolution and in its practice, that attempting to separate them is not sensible—both are basic to it.

Specific Examples

Perhaps this can be illustrated best by describing some of the research projects. One which comes to mind immediately is at Uniandes, Los Andes, in Bogotá. There the IBM World Trade Corporation is providing a 650 machine as a nucleus for a computation center, wherein teaching and research in civil engineering methods and problems will be carried out. At the Institute we have had such an activity in our Department for a number of years. The center at Los Andes is directed by a recent graduate from our group, a Bogotano, now on the faculty there. It has access to computer programs, manuals, and techniques we have developed; members of our Faculty make frequent and extended visits, to assist in the teaching and research; some of their students will continue to come with us at the Institute for advanced training, and several of our graduate students will spend next summer in Bogotá. The Colombian Ministry of Public Works provides significant support to the center and its engineer employees receive instruction from it. This center also is open to students and faculty from several other universities.

Accompanying our engineering participants at Los Andes is a second group from the Institute, composed of social scientists who are concerned with the human and organizational responses to technological change. This reflects our intention, within the Inter-American Program, to recognize and study the social, political, economic, and humanistic consequences of the engineers' labors. From the earliest days of the Overseas Study Plan we have profited from the active collaboration of the Institute's Center for International Studies and its working association with us continues. Along the same line, the problems inherent in creating bi-national management for technical enterprises are growing as industry penetrates formerly agrarian societies, and we are now engaged in a unique study of these problems in conjunction with men from the School of Industrial Management at a rapidly industrializing region, also in Colombia.

Other research projects in various stages of development are concerned with the analysis and control of water resources by modern, economical methods; how infiltration of sea water into estuaries, inlets and tidal lakes can be studied and controlled; new theories of soil consolidation and settlement; how structural models can be employed to enhance earthquake resistant design methods; and how cementitious materials can be made more impact resistant, with greater tensile strengths. Collaborators from universities in Chile, Colombia, and Venezuela are now our guests at the Institute and more will be coming in the months ahead.

So the Inter-American Program is a reality about three years after the first vague stirrings began. The educational values we foresaw are proving out in practice. A new dimension is appearing in our Department, and we continue to learn.

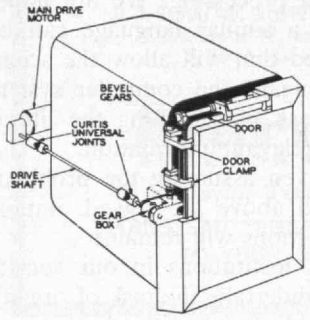
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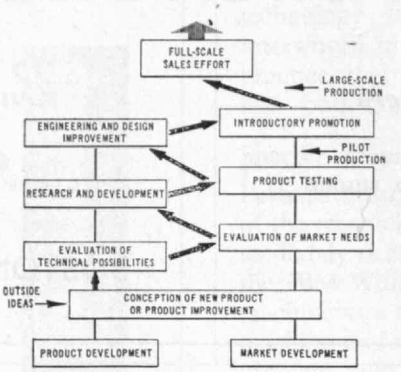
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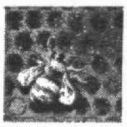


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Technical Information

(Concluded from page 34)

engage the working scientist with the search system. We cannot expect every scientist to become an expert in computer programming and manipulation. Nor is it desirable that the scientist assume a passive role and depend entirely on a middleman between him and his literature. Some capacity for browsing and intimate contact must be built into the system.

To provide this capability one must develop a search or browsing language that will be understandable to both scientist and computer. Such special languages have been developed to help scientists use computers for computation, accounting, and data processing. We are hopeful that a similar language can be developed that will allow the scientist to engage the computer system in the task of searching the literature for relevant information.

But even assuming the problems discussed above are solved, important questions will remain:

- What institutions in our society should undertake the task of organization and administration?
- Shall systems be national or regional?
- What is the probable cost of a working system and how should it be financed?
- What about copyrights and royalties?
- To what extent can existing sources of information be linked into the system? And to what extent can we use media not conventionally used in scientific communication (radio, TV, remote printers, etc.)?

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New Books

(*Concluded from page 32*)

TRAIL BLAZERS OF TECHNOLOGY: The Story of Nine Inventors, by Harland Manchester *(Charles Scribner's Sons, $3.50). It is reviewed by John T. Fitch, '52, M.I.T. Science Reporter for WGBH-TV.*

WISELY AVOIDING repetition of the biographies of such well-documented inventors as Thomas Edison and Alexander Graham Bell, Harland Manchester, a former Boston newspaperman, has chosen instead to salute nine lesser-known inventors of the Nineteenth Century; Thomas Davenport, Rudolf Diesel, Charles Goodyear, Alfred Nobel, Simon Lake, Hiram Maxim, Nikola Tesla, Lee de Forest, and Igor Sikorsky. The author indicates through his foreword that, in this day of the large organized research laboratory, we may never see their like again. And he tells the stories of these "nine men who possessed the rare gift of invention" with great warmth, humor, and respect.

No one who reads the book is likely to forget the tempestuous Maxims of Maine, two of whom went to M.I.T.—particularly old Sir Hiram who "mixed phosphorous in people's hair oil so that they glowed at night" and, in his more serious moments, invented everything from machine guns to coffee substitutes. Nor will they forget the story of Lee de Forest testing silver coins as electrodes. Down to his last silver dollar, he found it necessary to exchange it for successively smaller coins, using the balance to buy food. Finally, as Mr. Manchester tells it, ". . . he had to stop work. He had eaten his electrode."

Because of the "Most Unforgettable Character" quality of these biographies, most of which appeared originally in *The Reader's Digest,* young people will probably enjoy the book more than adults.

Have You Seen These Books?

RECENT publications especially likely to interest the Alumni of M.I.T. include:

The Academic Preparation of Secondary School Teachers, the reports of four committees of the Twenty-nine College Cooperative Plan, including the recommendations of a committee on preparation in mathematics that was headed by Professor N. C. Ankeny of M.I.T. (Harvard University Press, $1).

Simplified Systematic Layout Planning, by Richard Muther, '38, and John D. Wheeler, shows businessmen how to plan their arrangement of space (Management & Industrial Research Publications, 3030 Main Street, Kansas City, Mo., $3.75).

Theory and Design of Digital Machines, by Thomas C. Bartee and Irwin L. Lebow, '48, of Lincoln Laboratory, and Irving S. Reed, of the Rand Corporation (McGraw-Hill Book Company, $11.50).

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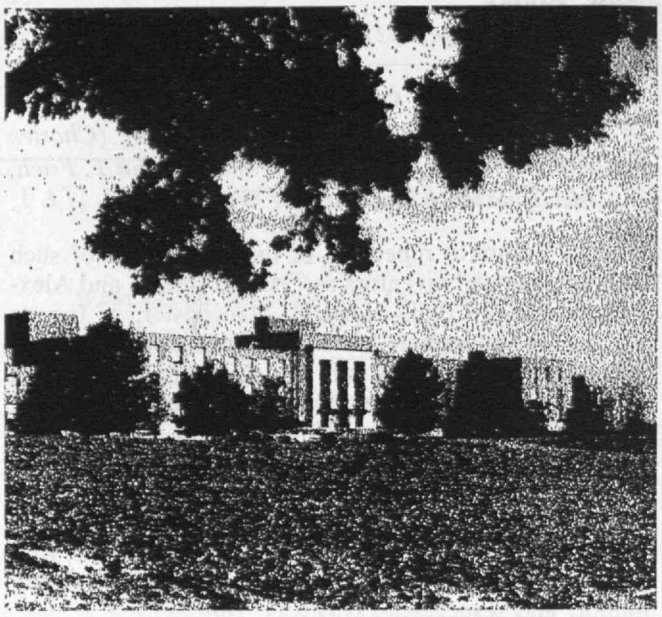
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- Design of electrochemical power sources
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The Washington area itself is fast becoming a booming research center—one of the four largest in the country—with some 200 private firms and 21,000 professionals ringing the District.

For complete information, contact William B. Wilkinson, Employment Officer. Starting salaries for graduate engineers and scientists from $6,465 to $11,150, plus the many benefits of Career Civil Service.

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Club News

New Mexico Alumnus Exhibits Wood Carvings

Alfred M. Perkins, '23, a member of the M.I.T. Club of New Mexico, recently has been creating a name for himself as a wood carver. Don Alfredo (an adaptation of the local and Spanish style of writing a person's first name) exhibited 14 of his works of art at the Farmers & Merchants Bank in Las Cruces, N. M., for nine weeks, beginning last October 6.

The figures displayed were mostly authentic representations of soldiers of famous militia and National Guard organizations wearing the fancy full-dress uniforms of former times. The figures included the Second and First Corps of Cadets of Salem and Boston, the Richmond (Va.) Light Infantry Blues, the Old Guard of the 3rd U.S. Infantry, a Fife and Drums Corps major, militia musicians from Colonial Virginia, and the Salem Light Infantry and Zouaves.

Other figures included "Reverie in A Flat," portraying a passé harpist in a frowzy flat with the harp pedals in the position of the key of A flat (thus giving the title a double meaning), and other non-military musical characters. Don Alfredo is attempting to preserve the details of some of the old uniforms, rapidly passing into oblivion with the passage of time, by making wood carving his hobby. Mrs. Perkins paints china—a most talented couple!

Another member, Max L. Ilfeld, '24, and his wife, Bertha, have left for sunny Mexico until mid-April. With this current spell of cold weather, many local Club members are considering emulating them. Our monthly luncheons are held the second Thursday of each month at noon in the Coronado Club on Sandia Base. Visiting Alumni are encouraged to join us.—T. J. Raftery, '31, Secretary, 1505 Valencia Dr., N.E., Albuquerque, N. M.

Boston Stein Club Views Building Overseas

Boston Stein Club members and guests enjoyed cocktails and dinner on January 22 at the M.I.T. Faculty Club. Guest speaker was Malcolm D. Rivkin, '56 (the son of our own Bernard M. Rivkin, '22), who recently returned from a two-year stint in Turkey, where he was sent by the Organization for Economic Cooperation as an advisor to the Turkish government in the field of regional planning. From his experience there he prepared a fascinating lecture, illustrated by slides, on "Institution-Building Overseas," with sidelights on some of the problems encountered in trying to bridge the gap from feudalism to the Twentieth Century.—Dr. Arthur Miller, '34, President, 91 Walnut Hill Road, Brookline, Mass.; Norman R. Gardner, '53, Corresponding Secretary, 40 West 3rd Street, South Boston, Mass.

Future M.I.T. Club Meetings

Following are the dates and principal speakers as announced at the time of printing for M.I.T. club meetings during March and April, 1963. For more details consult the club secretary in your city.

March 7—Detroit—Program to be Announced
Secretary: Mrs. Ella P. Gardner, '55, 1821 Villa, Birmingham
March 7-9—Mexico City—15th Annual Fiesta
Reservations: Alvino Manzanilla-Arce, '31, Angel Urraza 1311, Mexico, D.F.
March 7—Worcester—Professor Jay W. Forrester, '45
Secretary: Arnold A. Kramer, '52, Mechanics Upholstering Company
March 13—Newark—Program to be Announced
Secretary: Colonel Carlo N. DeGennaro, '53, 905 Hudson Street, Hoboken
March 13—Rochester—President Julius A. Stratton, '23
Secretary: John D. O'Brien, '51, Eastman Kodak Company
March 14—Boston—Panel on Starting Small Businesses
Secretary: Warren W. Heimbach, '58, 120 Sylvan Street, Danvers
March 26—Chicago—Dr. Irwin W. Sizer
Secretary: Bernhard W. Romberg, '56, Arthur D. Little, Inc.
March 28—Route 128—Dr. C. Stark Draper, '26
Secretary: Robert E. Anslow, '54, Raytheon Company, Lexington
April 10—San Francisco—President Julius A. Stratton, '23
Reservations: Roger S. Borovoy, '56, Lippincott, Ralls, & Hendricson
April 11—Boston—General James McCormack, '37
Secretary: Warren W. Heimbach, '58, 120 Sylvan Street, Danvers
April 12—Los Angeles—President Julius A. Stratton, '23
Secretary: Albert A. Levingston, '49, Home Life Insurance Company
April 23—Seattle—Dean John E. Burchard, '23
Secretary: William J. Sullivan, Jr., '51, Boeing Airplane Company, Renton
April 25—Washington, D.C.—Program to be Announced
Secretary: Paul M. Robinson, Jr., 8009 Jansen Drive, Springfield, Va.

Additions to this column of meeting announcements are welcome. Copy is due March 21 for the May issue of The Technology Review and should list your club meetings for May and June. Send your copy to: Alumni Secretary, M.I.T. Alumni Association, Room 1-280, Cambridge 39, Mass.

Detroit M.I.T. Club Visits Planetarium

Members and guests of the M.I.T. Club of Detroit enjoyed some stargazing at the Cranbrook Institute of Science Planetarium in suburban Bloomfield Hills last November 30. William Schultz, a member of the staff of Cranbrook School for over 30 years, was the speaker.

The first Dean of Humanities at M.I.T., Edwin S. Burdell, '20, who is now with the Cranbrook Foundation, was welcomed into the Club. Other new faces this year include: Alden W. Peterson, '26, David R. Knox, '27; John H. Glover, '31, Berj Trshjian, '33, Eugene H. Williams, '33, Lewis D. Fykse, '41, Charles S. Ricker, '42, Henry B. Moore, '44, Harvey S. Freeman, '46, Gordon I. McBain, '50, Charles H. O'Grady, '50, John M. Prizer, '52, Frantisek Borik, '53, David K. Donald, '57, Robert J. Hoffmann, '57, Paul G. Hickman, '60, Mrs. Barbara Z. Sedlin, '60, and Arthur Howland, Jr., '61.

A buffet-style dinner was served before the planetarium show at Devon Gables, and the only "complaint" came from those who couldn't hold both roast beef and lobster Newberg!—Ella Paton Gardner, '55 (Mrs. Richard R. Gardner), Secretary, 1821 Villa, Birmingham, Mich.

Kansas City Club Hosts Students and Fathers

Eight M.I.T. students and seven of their fathers were guests of the Kansas City Club at a luncheon on December 29 in the Coach Room of the Fred Harvey House. The Alumni learned of current scholastic, interscholastic, and social activities at Tech, as well as planned improvements. Kit Hammond, '64, acted as guest speaker and moderator of student comments, while Warren Evans, '39, Club President, parried for the "old grads." Plans for spring and summer activities include a social mixer to bring together Alumni, students, and entering freshmen.

Professor Charles S. Draper, '26, spoke at a meeting of the Kansas City Chamber of Commerce on February 13, through the combined efforts of the Club and the Missouri Society of Professional Engineers, Western Chapter. Dr. Draper's visit opened Kansas City's observance of National Engineer's Week.

At the December 29 meeting the present officers of the Club were re-elected for another annual term: Warren Evans, '38, President; Bernard Duffy, '39, Vice-president; B. J. Kirkwood, '49, Secretary; and Philip Gruber, '25, Treasurer.—B. J. Kirkwood, '49, Secretary, 4308 West 79th Street, Prairie Village, Kansas.

Boston Alumni Hear Bank and Investment Experts Discuss Financing Problems of Small Companies

The financing of small companies was the topic at the January 10 luncheon of the M.I.T. Club of Boston at the Union Oyster House. The constant formation of small, technically oriented companies and their dynamic growth in the Greater Boston area is a phenomenon peculiar to few sections of the country.

Hugh S. Ferguson, '23, President of the National Research Corporation and the New England Enterprise Capital Corporation, one of 28 Small Business Investment Corporations (SBIC) in the Boston area, explained: Difficulties in obtaining long-term investment capital for small businesses precipitated the need for an organization such as SBIC, which was set up by Congress under the guidance of the Small Business Administration. Investment bankers generally consider small business too great a risk, as do other capital sources. SBIC is principally interested in capital appreciation situations because of special tax benefits involving capital gains. Since this generally involves the sale of stock, small businesses such as the retailer tend to be automatically excluded. Nevertheless, SBIC provides the opportunity for many new ideas to take form and get off the ground. (The new electronic companies in the Boston area provide a good example). The maximum amount a single SBIC loan can be to a given company is 20 per cent of its paid-in capital and surplus, or $500,000. Larger loans are often managed through syndication. The New England Corporation, formed in 1961, insists on representation on the board of directors of any of its investments and usually invests only in businesses which demonstrate capable management and a saleable product.

Arthur Snyder, Vice-president of the New England Merchants National Bank, presented these views: Banks like to work with the SBIC, and refer many of the situations they encounter to SBIC. Often small businesses wait too long to contact financial sources, and are in serious trouble by the time they do. Half the companies dealt with could use a better treasurer, or at least better control of financial matters. Banks like to deal with companies that have demonstrated management ability, specifically with regard to the treasurer's functions. Proper business philosophy is to make profits, not widgets —and, contrary to the opinion of many students and adults, there is absolutely nothing immoral about profits! Banks differ from SBIC by making short-term blue-chip loans. Long-term investments (often risky ones) made by SBIC require a five-year forecast of the investment growth, considering all the environmental influences, and the various plateaus of corporate growth through which the company must pass. The future of SBIC cannot be predicted with confidence, because SBIC is still too young to assess its role.

The career counseling program of the Boston Club was launched in January. Considerable interest has been shown by the senior members who are offering their time for counseling and the recent graduates who seek advice. Counselling meetings will be arranged on individual and small group bases.—Warren W. Heimbach, '58, Secretary, 120 Sylvan Street, Danvers, Mass.

Texas Alumni Hear M.I.T. Progress Report

The combined M.I.T. Clubs of Northern Texas and Fort Worth held their annual Christmas Party on December 12 at the turnpike Howard Johnson Restaurant. Forty-six Alumni and guests heard Donald P. Severance, '38, the Alumni Association Executive Vice-president, present an illustrated progress report on the changes taking place at Tech as a result of the Second Century Fund.

To conclude the formal entertainment, a new fund raising campaign, "The Third Century Fund," was kicked off with a slide presentation "This Here's M.I.T.," produced by the penniless Alumni of the Dallas-Fort Worth area. This show was a tongue-in-cheek copy of a film widely distributed during the Second Century Fund drive. The Dallas-Fort Worth Alumni extend thanks to Phil Schmidt, '62, for his excellent presentation.

As a result of Don's visit, George Filak, '54, has been appointed regional chairman of the forthcoming Dallas Alumni fund campaign. Everyone's co-operation is earnestly requested so that the important work of the Alumni Fund can be continued.—Stanley Martin, Jr., '50, Secretary, Northern Texas Club, Bell Helicopter Company, P.O. Box 482, Fort Worth 1.

Hawaii Alumni Welcome New Club Member

Commander Willard F. Searle, Jr., '52, a graduate of Course XIII-A, is the latest addition to the M.I.T. Club of Hawaii's membership. He arrived in Hawaii last August for a three-year assignment and is presently serving as Fleet Salvage Officer at COMSERVPAC, Pearl Harbor. Commander Searle recently completed a year's study at the Naval War College in Newport, R.I. He and Mrs. Searle are residing at 182 McGrew Loop in Aiea with their two daughters.—Franklin Y. K. Sunn, '52, Secretary, 195 South King Street, Honolulu 13, Hawaii.

Hartford Group Hears Professor Mueller

The M.I.T. Club of Hartford held its first meeting of the year on November 8, 1962. Hans Mueller, Professor of Physics at M.I.T., was introduced by Wilfred Roth, '48. Professor Mueller discussed various phases of optics—from very basic theories through lasers and masers.

Future club programs may include such subjects as inertial guidance systems and the Federal Aeronautics Administration. —William A. Bayer, '58, Secretary, 422 Farmington Avenue, Hartford, Conn.

Oklahoma Club Elects 1962-1963 Officers

Charles S. Draper, '26, Head of M.I.T.'s Department of Aeronautical and Astronautical Engineering, talked on guidance systems to 56 Oklahoma Club members, wives, and sons at a December meeting.

Officers elected for 1962-1963 are: John P. Dowds, '51, of Oklahoma City, President; Robert L. Rorschach, '43, of Tulsa, and Charles B. Stuart, '34, of Oklahoma City, Vice-presidents; Bruce Kirton, '44, of Tulsa, Secretary-Treasurer; and Ernest T. Schoenwald, '44, of Pryor, Robert W. Vahlberg, '37, of Oklahoma City, and Richard Mungen, '47, of Tulsa, Executive Committee Members.

Recent address changes of club members include: Samuel R. Fryer, Jr., '59, from 1912 N.W. 18th Street, Oklahoma City, to 3139 E. 5th Place, Tulsa; and Rex M. Ball, '58, from 7007 N.W. 18th Street, Oklahoma City, to 4235 South Oswego, Tulsa.

On our last mailing, letters addressed to several men were returned. If anyone has information regarding these men, please send it to the club secretary. They are: Dr. John B. Giever, '48, 1400 Melrose, Norman; Dr. Reuben E. Joynson, Jr., '54, Ponca City; Leonard J. Timms, Jr., '58, 3515 South Trenton, Tulsa; and John B. Tuthill, '33, Miami; all of Oklahoma.—Howard Grekel, '47, Retiring Secretary, Pan American Petroleum Corporation, P.O. Box 591, Tulsa, Okla.

Rochester Group Hears Changing City Topic

Robert C. Wood, Associate Professor of Economics at M.I.T., addressed a combined meeting of the M.I.T. Club of Rochester and the Council of Social Agencies last fall on "The Changing City." Professor Wood discussed cities in general and Rochester in particular. Phillip E. Kron, '34, planned the meeting.

Another fall event was a dinner meeting with Professor Howard W. Johnson, Dean of the School of Industrial Management, who explained "New Directions in Management." The Sloan Fellows present seemed to enjoy needling their former mentor. Charles R. Adler, '60, James K. Littwitz, '42, and Gordon L. Calderwood, '27, made arrangements.

The annual Christmas luncheon was held on December 27 with Avery A. Ashdown, '24, Associate Professor of Chemistry Emeritus, in his traditional role as speaker. Professor Ashdown and the students attending from the Institute brought us up to date on activities in Cambridge. The next event was a family ski-weekend January 26-27 in Turin, N. Y., with William N. Hosely, '48, as chief ski instructor.

Local Alumni in the news include: Howard J. Samuels, '41, who put up a good fight before losing the Democratic nomination for governor of New York; Clarence L. A. Wynd, '27, who was appointed a director and executive committee member of the Eastman Kodak Company; and John L. Espy, '47, who has left Kodak to teach in the Far East.——John D. O'Brien, '51, Secretary, 50 Pelham Road, Rochester, N.Y.

Washington M.I.T. Club Is Host to Students

Fifty Tech students vacationing in Washington, D. C., 49 applicants for admission to M.I.T., and 13 Alumni attended the seventh annual Student-Alumni Luncheon on December 27 at the Cosmos Club. All arrangements were made by Robert W. Blake, '41, chairman of the event. In subsequent interviews with Educational Counselors, applicants said they found the luncheon most helpful, particularly the opportunitty to talk with students now attending the Institute.

Frank G. Kear, '27, President of Kear and Kennedy, consulting engineers, talked on Tech life in retrospect. James Evans, '63, President of the M.I.T. Athletic Association, showed a film strip on sports at M.I.T. and gave the students' view of life at the Institute today. William C. Howlett, '49, Washington Regional Chairman of the Educational Council, spoke on the purposes and functioning of the Council. Sterling H. Ivison, Jr., '41, Club President, discussed the objectives of the Alumni Association and local alumni clubs.

The first dinner meeting of the club year was held on November 8 at the Cosmos Club. Knox Taylor Millsaps, Executive Director of the Air Force Office of Scientific Research and Chief Scientist of the Air Force Office of Aerospace Research, explained "The Changing Pattern in the Relationship between the Universities and the Federal Government." He was introduced by George R. Thompson, Jr., '53. Although his subject was a serious one, Dr. Millsaps fulfilled his advance billing as a humorous speaker for 71 attending Alumni and guests, Dr. Millsaps, who joined the M.I.T. Faculty for 1955-1956 as Professor of Mechanical Engineering, said he enjoyed the academic atmosphere and suggested support of the National Magnet Laboratory now at M.I.T. He cited figures indicating federal support, previously almost insignificant, of university research had increased during and since World War II. It now exceeds the endowment income of even the most heavily endowed institution, he said, and he pointed out the dangers of inept government administration of funds.

The Pentagon Luncheon Group met with 24 Alumni and guests on December 17 to hear J. P. Ruina, Director of the Advanced Research Projects Agency, describe ARPA's role in the overall research and development effort of the Department of Defense—ballistic missile defense, nuclear test detection, remote area conflict research, propellant chemistry, material sciences, command and control, behavioral sciences, and energy conversion. ARPA projects account for approximately 15 per cent of the research and exploratory development funds of the Defense Department's budget for the 1963 fiscal year.

Future club meetings are scheduled for February 26 at the Cosmos Club, and on April 25.—Paul M. Robinson, Jr., 2-'44, Secretary, 8009 Jansen Drive, Springfield, Va.

Class News

'95

We are indebted to the Boston Herald of December 21, 1962, for the following account of the passing of our classmate, Willard Bigelow: **"Charles Willard Bigelow,** 88, retired Boston wool merchant, died yesterday at his home, 23 Elm Street, Brookline. A graduate of St. Mark's School and M.I.T., Class of 1895, he served on the War Trade Board in 1917 and 1918. For many years he was connected with the wool firm of Mauger and Avery, but later became head of his own firm, Bigelow, Reed and Company. For 15 years he served as secretary-treasurer of the Boston Wool Trade Association. He was a member of the St. Anthony Club of Boston. Surviving are his wife, Mrs. Ruth Dwight Bigelow, and a son, Charles W. Bigelow, Jr., of Sudbury."—**Andrew D. Fuller,** Assistant Secretary, 120 Tremont Street, Boston, Mass.

'96

Cards intended for the class came to the secretary from **Harold Boardman,** Mrs. **Hattie Campbell, William D. Coolidge**—who is to spend two months at Siesta Bay, Sarasota, Fla., after driving down with Dorothy; and **Richard Elliot,** who still drives his auto and fishes from a 14-foot Crestline outboard motorboat. . . . **Frank Guptill** has one son taking care of things in Harvard and the other on the engineering staff of Tedesco Company, Beacon, N.Y. . . . **John Eynon** is still in a rest haven in LaMesa, Calif. . . . **Charles Hyde** wrote from his daughter's home in Washington; he still thinks of the class, as he should, since he is still president of the class as a hold-over from graduation. . . . Cards also came from Mrs. **John A. Rockwell,** who has built a new house in Englewood, Fla., where she now lives near her sister. . . . Mrs. **Moat** answered for **Charles,** who suffered a stroke three years ago and is in a nursing home in Burlington, Vt. . . . Mrs. **Brown** from Fort Wayne and Mrs. **Henry Waterman,** from Yarmouth, Nova Scotia, where the winter has been very severe, sent tidings.

Mrs. Alice Hedge, widow of **William R. Hedge,** died suddenly December 31. She has been a benefactor to the class. **Henry R. Hedge,** her brother-in-law, and the secretary and several M.I.T. Alumni, were at the funeral in Boston. . . . **Ralph Henry** phoned during the holidays; after the secretary answered as well as he could about many classmates, Ralph said he would send a note about himself. If the note arrives in time for the next issue of The Review, it will be acknowledged together with the receipt of cards sent by other members of the class. The annual Fiesta in Mexico of the M.I.T. Club of Mexico City is to be held March 7-9. —**James M. Driscoll,** Secretary, 129 Walnut Street, Brookline, Mass.; **Henry R. Hedge,** Assistant Secretary, 105 Rockwood Street, Brookline, Mass.

'97

The months move along rapidly, but my accumulation of Class News has not that characteristic. . . . **Will Bradley**'s report of his lonely reunion, in June, should have reached you in the January Review. He reports being headed for Florida, but if temperatures there are in the 40's, it is questionable whether he should be congratulated. Holiday cards have come from **Ed Hawkins,** suggesting that a concrete post is a poor thing to run into; from **Charlie Hammond** and **Pete (Howard A.) Noble** also came holiday greetings. Some of you with less handicap than Pete might emulate him in dropping a line to this agency. Thanks are due all who wrote.

From the other side of the United States, Hemet, Calif., Fred Gilbert, '98, has sent some interesting news. He was Course V and with us for three years, but dropped back to '98 for graduation. He knew the **Woodman** twins well, but had lost touch with them. I gave him the address of **Alpheus**. . . . These notes are saddened by the death, on December 26, of **Jere Daniell.** This reduces the survivors of the 13 at our 60th Reunion in Dedham to five. Those who were there will remember the activity of Jere's wife, Charlotte, in getting a picture of the group. Jere was assistant secretary of the class, but due to poor health could not take over the duties that **Jack Ilsley** left unfinished a year ago. . . . Please, a volunteer for '97 class secretary!—**George R. Wadleigh,** Acting Secretary, 70 Flower Avenue, Hastings-on-Hudson, N.Y.

'98

The '98 Class News for February, 1963, was short because in December, 1962, the secretary found it necessary to take a vacation in Bermuda. This he enjoyed greatly and found very beneficial; but this did not take care of the Class News. On returning from Bermuda, we found many holiday greeting cards from classmates to whom we express our sincere thanks. We have chosen three of these for inclusion in the March, 1963, Class News as we think they will prove interesting to classmates, especially to engineering graduates and to other readers of The Review.

David Fenner sent us a card, a picture of his first "Horseless Carriage." On the back of the card was a description of this vehicle, displaying Dave's accurate engineering knowledge and his abounding sense of humor, as follows: "The Sylph —Early last year, Gertie and I agreed to send you this photo of our first 'Horseless

Carriage' as a Christmas card for 1962. Hope you like it! Designed by Elwood G. Haynes in 1894 and built by Elmer and Edgar Apperson in their shop in Kokomo, Ind., in 1897-98. First purchased by I. Walter Lovattof, Bethlehem, Pa., and presented to his son, Walter, who is shown in driver's seat. In 1903 young Walter persuaded his father to buy him something more modern and they sold the old car to me for $200. I ran it for two years and sold it to a butcher to be used as a delivery wagon for $50. Still as good as new! It was known as a Haynes-Apperson Surrey because the following accessories were purchased from a horse-drawn Surrey Manufacturer: leather dash board, with whip socket; leather mud guards for the rear wheels; leather front and rear seats; and a canopy top with fringe all around (not shown in photo)! The chassis had an angle iron frame, semi-elliptic springs, Weston-Mott axles, wood wheels and single tube pneumatic tires, hand pumped. The engine was two-cylinder, horizontally-opposed. Each cylinder had its own Schebler spray carburetor, a low tension magneto and mechanical make and break spark plugs. For starting the engine we had two 6-volt dry cells known as doorbell batteries. The starting crank, applied on the side, weighed nine pounds. Feeling reasonably sure of a start on the dry cells, one dropped the crank and rushed to the dash, where a jack-knife switch had to be thrown to convert the ignition current from battery to magneto. One didn't always make it. So—try again! The cylinders were water cooled a la Thermo Syphon. No pump, no radiator, but plenty of one and one-quarter inch wrought iron pipe and on either side of the rear seat, a thin gauge copper tank, each of which held the contents of a wash boiler. In summer, the passengers on that rear seat were never cool. Steering was by tiller through reversed Elliott knuckles. Wheel and axle bearings were Hyatt roller, made in Harrison, N.J., and sold by Alfred P. Sloan, Jr., '95, now tops in General Motors. The transmission was unique, three-speed and reverse progressive. The box contained two shafts, on one of which the gears were free to rotate, until picked up by a long feathered key, actuated by a lever with a wooden handle at the driver's left. The final drive to the rear axle was by sprockets and single roller chain, differential and axle shafts. Had kerosene oil lamps, made by Dietz and a big gong which scared horses something fierce. We were supposed to pull off the road, stop our engine, get out and offer to help the horse and his driver get along past. This proved a time consuming procedure, but, what the hell. This was Eighteen Ninety Eight! Merry Christmas and a Happy New Year! Dave Fenner, '98. Be seein' yer in June, 1963."



Dave Fenner's ('98) first 'horseless carriage,' The Sylph, featured such luxuries as a leather dashboard, whip socket and a canopy top with a fringe.

Happy Birthday

Congratulations are due in March for an alumnus who will celebrate his 95th birthday; and to 2, 10 and 6 Alumni who will celebrate, respectively, their 90th, 85th and 80th birthdays. Birth dates are listed below. Special congratulations are extended to RALPH HAYDEN, '04, who celebrated his 80th birthday on June 4, 1962.

March, 1868—WILLIAM C. BROWN, '91, on the 7th.

March, 1873—DAVID C. CAMPBELL, '99, on the 17th; and CHARLES H. SWEETSER, '97, on the 20th.

March, 1878—ANTOINE B. CAMPAU, '01, on the 2nd; LAWRENCE ADDICKS, '99, on the 3rd; WALTER L. RAPP, '00, on the 8th; CLAUDE E. PATCH, '02, on the 10th; LEVI B. JENNINGS, '00, on the 12th; J. ARCHIBALD MEARS, '03, on the 16th; PAUL G. L. HILKEN, '01, on the 24th; PEDRO E. RAYGADA, '09, on the 26th; RICHARD F. SPAMER, '03, on the 29th; and ROBERT H. LEACH, '00, on the 30th.

March, 1883—GEORGE K. KAISER, '04, on the 12th; WILLIAM P. BEARCE, '06, on the 17th; ARTHUR H. HOWLAND, '05, on the 18th; STANLEY B. HALL, '07, on the 25th; CARROLL S. DEAN, '07, on the 27th; and ALVA B. COURT, '10, on the 29th.

With regard to Dave's comments at the end of his description, "Be seeing you in June, 1963," this, of course, refers to the 65th Reunion of '98 M.I.T., next June. A committee, of which President **Daniel W. Edgerly**, and the Secretary **Edward S. Chapin,** are co-chairmen, includes **Frederic A. Jones,** Assistant Secretary, **Roger W. Babson,** Counselor, **George Russell Harrison,** Honorary Member and Dean of Science at M.I.T., **Alvan L. Davis,** Professor **Joseph C. Riley,** and others. The committee has been working on the subject for the past two years, more or less handicapped by distance and circumstance as Daniel W. Edgerly lives in Chicago, Roger W. Babson spends his winters in Florida, and Al Davis lives in Waterbury, Conn.; nevertheless the committee has a tentative plan, helped by the Alumni Association of M.I.T., Mrs. **A. A. Blanchard** and Roger W. Babson. Two Days. First day: Alumni Day at M.I.T. The Alumni Association has placed at our disposal from June 7 to 10, 1963, rooms at Burton House. In the words of the letter from Fred G. Lehmann, '51, Secretary of the Alumni Association: "As we agreed, your class will be housed as the guests of the Institute during your stay in Burton House. In addition to the rooms, breakfast will be available for your class on June 8, 9, 10 and the 11th also if anyone stays over. The breakfasts, of course, will be at the expense of the Institute." Mrs. Arthur A. Blanchard owns a house in Brookline, and it is tentatively arranged that those wives and women who wish to attend our 65th Reunion, may make their headquarters at her house.

The president of the class has been in communication with Roger W. Babson; and the secretary, last November, paid a visit to Roger at his home, 90 Seward Road, Wellesley Hills 81, Mass. Roger drove the secretary around Babson Institute, 400 acres in all, in which are many buildings with which '98 is familiar and many new ones. I was greatly impressed. On the second day of our 65th Reunion, it is now tentatively arranged, classmates will be transported to Wellesley Hills Babson Institute for a special '98 get-together. Details are still to be worked out; but we will again be the guest of our distinguished classmate, Roger W. Babson.

Continuing the greeting cards: **Robert Lacy,** from 201 Tunbridge Road, Baltimore 12, Md., writes inside his card: "Dear Ed: Your bright card came just now—glad indeed to hear from you and Fred Jones; so many have gone. We drove to our Friendship Airport this P.M. to meet our two boys; one from Boston (Minneapolis-Honeywell) and the other from San Francisco (Lockheed-Polaris) but both flights were cancelled! High wind in Boston and fog in San Francisco.

The airplane of the future will rise vertically. Hope to see you in June. With good wishes, Lacy." . . . By the way, there are still 49 members (living) listed on the roster of the class, besides many wives, widows, sons and daughters, sons-in-law, daughters-in-law, grandsons, great-grandchildren, etc., so that if we all or only a fraction of the total show up at the 65th Reunion, there will be quite a party! So all together! One or two classmates and committee mates cannot do it all; but all working together, in three more months after March 1, can accomplish a great deal. . . . The third greeting card, with a letter enclosed, was from **Willard Bundy Nelson,** as follows: "Dear Ed: Have just read the '98 notes in The Review. Am glad no new 'departures' were noted. I am well and quite active for my age. May see you in June. Willard Nelson." . . . Still another classmate thinking of coming to the 65th Reunion. Well, why not?—**Edward S. Chapin,** Secretary, 271 Dartmouth Street, Boston 16, Mass.; **Frederic A. Jones,** Assistant Secretary, 286 Chestnut Hill Avenue, Brighton 35, Mass.

'99

We have lost two more classmates. **William F. Hyde** died May 23, 1962, at 86½ years of age and **Mrs. W. Holway Hill (Helen M. Hanscom)** of Wellesley died in August, 1962. . . . **Edwin B. Mead** retired five years ago and lives at 3668 Adams Street, Riverside, Calif. . . . **Norman E. Seavey** is now at Two Lucerne Circle, Orlando, Fla. . . . Miss **Harriet Faxon** sends greetings from her gracious 93 years. . . . **Harry K. White** sent good news about the splendid career of **Norman P. Rood,** who sold his Dynamite Manufacturing Company to Du-Pont. . . . Greetings of the season were received from Lawrence Addicks. William Kinsman, Hervey Skinner, Miles Sherrill, George Glover, Fred Grover, Edgar Trask, Etheredge Walker, and I herewith transmit them to all the class. —**Percy W. Witherell,** Secretary, 1162 West Street, Wrentham, Mass.

'00

Your secretary sent Christmas cards to every member of the class this year, to see whether he could elicit some response from long lost members. The result was not all that could have been desired, but we did hear from several who have been silent for years. Perhaps a few others may see these notes and decide to respond. . . . **Ted Brigham's** daughter wrote that her father died on May 2, 1962, her mother having passed away the preceding January 11. We had not received word of this before. Ted had spent his entire life in Greenport, Long Island, building boats and devoting himself to public service in his locality. We expect to have more information about him next month. . . . **George Mead** died on January 1, 1963. He was one of the most successful members of our class and the only one to have a company bearing his own name listed on the New York Stock Exchange. The Mead Corporation is a maker of paper board, white and coated paper, boxes and other products in the field. Its production in 1961, including that of subsidiaries and affiliates, was said to be in excess of a million tons.

Among seldom heard from members of the class **John M. Higgins** wrote: "Too much water has gone over the dam. The reservoir of accomplishment, aplomb and ability to attend the reunion of the class of 1900 is not equal to the occasion. 'The leaves of its own past are what a strong tree lives on. Just so it is with a man and his memories. It may be all he has or is.' My best regards to you and the members of the Class of 1900." He writes from Wyoming, Ohio. . . . **Levi B. Jennings** of Weston, whom we have heard from occasionally, says: "I am well and try to keep busy enough to get some exercise. Weather permitting I walk about two miles a day. The boy who mows the lawn was going to rake the leaves but football lured him away so I did it myself. Never again! It took me a week to get over it." . . . **Llewelyn Cayvan,** another occasional correspondent, is still busy teaching chamber music to 20 girls and three boys in Calvin College, Grand Rapids, Mich. He retired nine years ago from the biscuit business. . . . **Nat Rand** writes from Wilmington, Del.: "Two years ago I had a long and expensive session in the hospital from which I have largely recovered although it took 17 blood transfusions. Although retired from active business, I still manage to keep busy. In the summer my flower garden keeps me very busy. Our home is supplied with vases of roses and my neighbors share in several other annuals and perennials. After passing the four score mark I have been forced to give up my other activities such as photography, which kept me on my feet, and archery, which was too strenuous, and rifle and pistol. Once a year we have a visit from my brother who lives in Lincoln, Mass., with his charming wife. He was formerly president and chairman of the board of Monsanto Chemical Company and a close friend of President Karl Compton. . . . I read The Technology Review with interest and sometimes I see a name in print that sends me to my copy of Technique, 1900 which I have treasured for 63 years."—**Elbert G. Allen,** Secretary, 11 Richfield Road, West Newton 65, Mass.

'01

You will have received the Class Letter with its questionnaire by the time you read this. Will you kindly answer this as soon as possible as arrangements have to be made well in advance if we are to have a reunion, and this depends on your answers. . . . In the January issue I made a report on the death of **Ed Seaver.** I have since received information from Dan Patch, '02, of some errors in statements of Ed's work. He was never in charge of the Emergency Fleet Corporation in Philadelphia. He was the assistant head of the performance branch of the Steel Ship Division according to the official roster. I make this statement in the interest of accuracy. . . . You will notice in the obituary list the death of Dr. **Grace MacLeod.** She was head of the Columbia University Nutrition Department for 38 years until her retirement five years ago. She lived with her sister in Knoxville, Tenn. Dr. MacLeod received her Ph.D. from Columbia and was, of course, a classmate of ours. Prior to teaching at Columbia, Dr. MacLeod taught bio-chemistry at Pratt Institute in Brooklyn for 18 years. She wrote several textbooks on nutrition and dietetics and was a member of several scientific societies. She was born in Scotland

Deceased

C. Willard Bigelow, '95, Dec. 19*
Jere R. Daniell, '97, Dec. 26*
George W. Blood, '98, Nov. 13
Mrs. W. Holway Hill, '99, Aug.*
William F. Hyde, '99, May 23*
Theodore W. Brigham, '00, May 2*
George H. Mead, '00, Jan. 1*
William E. Farnum, '01, Oct. 10
Grace MacLeod, '01, Nov. 16*
John R. Mardick, '02, Nov. 12*
Charles H. Porter, '02, Dec. 30*
Hewitt Crosby, '03, Sept. 21*
Philip S. Sweetser, '04, Nov. 29*
Reginald A. Wentworth, '04, Dec. 10*
Walter B. Cain, '05, Jan. 6*
William H. Crowell, '05*
James M. Lambie, '05, July 3*
J. Garfield Riley, '06, 1962
Mrs. Gertrude S. Hinckley, '10, Dec.
Bertholf M. Pettit, '10, Nov. 18
Thomas H. Haines, '11, Jan. 15
John W. Livingston, '13, Dec. 21
William Guild, '13, Nov. 20*
Morris F. Hall, '13, Nov. 14*
Alfred L. Higgins, '13, Nov. 7*
Fred D. Murdock, '13*
C. Weare Howlett, '15, Nov. 12*
Robert P. Sherman, '15, May 6
William S. Chandler, '16, Dec. 19
William H. Fleming, '16, Dec. 1*
John S. Ellithorp, Jr., '17, Nov. 27*
H. E. Lobdell, '17, Jan. 1*
Francis E. Thomas, '17, Nov. 10*
Elwood M. Manter, '18, June 20*
Dorothy Durling, '22, Nov. 21
Robert A. Brown, '23, Jan. 13
Oscar E. Friedhof, '23, April 21*
Charles F. McQuiston, '23, July 20
Charles E. Snow, Jr., '23, Nov. 11*
Herbert J. Wills, '23, Feb. 10, 1962
Francis D. McKeon, '26*
Felix Bardach, '27, Feb. 9, 1962*
Robert Tate, '32, Oct. 18*
Edward H. Thorne, '32, Nov. 24
David Ingalls, '34*
Gordon L. Gundersen, '35, Aug. 16
Norman G. Tompkins, '37, Nov.*
Robert J. Meier, '41, Dec. 30*
Hans H. Bernhardt, '48, Sept.*
Thomas W. Martin, Jr., '49, Nov. 28*

* Further information in Class News.

and came to this country when four years old because her father thought there were better educational facilities in the U. S. She is survived by two sisters. —**Theodore H. Taft,** Secretary, Box 124, Jaffrey, N.H.

'02

Through a note from Mrs. Mardick to **Dan Patch** we learn that **John R. Mardick** died in New York on November 2, 1962. He had made his home in that city for many years and carried on a consulting business with many chemical firms; his special line was dyestuffs, their use and manufacture. Mardick immediately after graduation entered the employ of a leather firm and remained in that field for about ten years. We quote from his letter to **Fred Hunter** in 1912. "For six years after leaving Tech, I plugged hard in getting details of leather business and occupied positions varying from a chemist to the managing of a plant and building factories. For the last four years I have had the time of my life. For business and pleasure, I have traveled through the United States and Canada from Maine to California. In the fall of 1910 went to Europe for travel and study along chemical and manufacturing lines. So I have been in England, France, Germany, Austria, Italy, Egypt, Greece, and Turkey." About this time he shifted his activities to explosive chemistry and was for a while with the United Safety Powder Company. He was active during World War I as a consulting explosive engineer for the War Department and explosive manufacturers. According to a letter from his son: "From 1916 to 1930 he did consulting engineering work with major chemical companies, after which time he focused his interest toward the dyes industry. During the early 1940's he went into semi-retirement spending a great deal of his time traveling and writing and had but recently returned from a trip to Soviet Russia." Mardick is survived by his wife, Gulmina Bedrosian Mardick, with whom he celebrated his golden wedding anniversary in May, 1962; and a son, John Aram Mardick.

Another classmate has passed away. Professor **Charles H. Porter** died in Tryon, N. C., on December 30, 1962. Porter was a native of Providence, R. I., and prepared for M.I.T. at Brown University. He was graduated from the Electrical Engineering Department and for some time was in the industrial field, but later became a member of the Faculty of M.I.T. He was retired as Professor Emeritus of Industrial Management. After retirement he took up residence in Tamworth, N. H., but spent most of his winters in the warmer climate of North Carolina. Memorial services were held on Friday January 11, 1963, at St. Michael's Episcopal Church, Milton, Mass. . . . **Arthur R. Nichols** gives a change of address on his Christmas card. He is now at 827—11½ St., S.W,. Rochester, Minn. It may be added here that his son and his son-in-law are both with the Mayo Clinic. . . . **Norman Borden** was heard from the other day in a short telephone call and was in good health.—**Burton G. Philbrick,** Secretary, 18 Ocean Avenue, Salem, Mass.

'03

Well classmates one and all, as you tranquilly read these notes, be aware that March is now here and arouse your dormant interest regarding our 60th Reunion. The occasion this coming June is truly an epochal event in the history of our wandering from the familiar scenes of dear old Rogers. It provides a restful holiday on campus and an opportunity to enjoy the modernized quarters of the Baker House, and its facilities, with its panoramic view of the Charles. Many of the new buildings are approaching completion. Symposiums by renowned scientists will consume the morning period preceding our class gathering at the Alumni Day luncheon. The class will meet again for the big class dinner at the Faculty Club to hear the interesting remarks of our devoted classmate, Professor Emeritus **Andrey A. Potter,** VI. Professor Potter will revive memories of our 50th Reunion in 1953. As Milton declaimed in "Paradise Lost"—"Awake, arouse or be forever fallen." Your secretary still awaits your reply. . . . Another pertinent quotation is from one of Professor Arlo Bateses' rambling lectures; as he jauntily meandered across the spacious platform of Huntington Hall and sensed a lack of interest in study of Sir Walter Scott, he brought forth: "I defy any man to read a book of his and not come out of it with some how or other, a good wholesome taste in his mouth; a liking for the thing that is strenuous, and a better liking for the thing that is honorable."

A quotation from our now historic '03 Technique is worth setting down here: "In one way and another it is believed that student life at Technology will be made richer and happier and fuller as years go on. To preserve its old-time spirit of earnest work and of democratic ideals; yet at the same time to give each man the opportunity to touch elbows with his classmates; to foster a generous and brave college spirit; to offer to the student four years of honest work from which he shall go into the world, not only able to stand on his feet as a man but with the love of his fellow students and of his alma mater in his heart—This is the hope and the purpose of the friends of the Institute."

Our happy 85th birthday greetings to our classmate, **Daniel C. Picard,** V, of 1732 15th Avenue, Birmingham, Ala., are cordially extended. . . . **Walter Sohier,** II, has a new address: 701 Hancock Way, El Cerrito, Calif. . . . Memorial services were held in the first parish in Milton Unitarian Church recently, for Mrs. Muriel (Barker) Churchill Eustis, 69, who died after a brief illness. Born in Dover, N.H., Mrs. Eustis had lived in Milton for 25 years. She was a practicing attorney and a member of the Chilton Club of Brookline, the Ladies' Visiting Committee of the Massachusetts General Hospital and the Boston Committee for the Home for Aged Women. Wife of the late **Frederick Augustus Eustis,** II, she is survived by a son, Delos B. Churchill of Oyster Bay, N.H.; a brother, Dr. Joseph W. Barker of New Rochelle, N.Y.; two stepsons, William E. C. Eustis of Cambridge, Mass., and Peter Eustis of Portsmouth, Va.; four daughters, Mrs. Mary E. Horner of St. Louis, Mo., Mrs. Edith H. Churchill of Cambridge, Mrs. Eleanor E. Jones of Milton and Mrs. Margaret E. Curtis of Chappaqua, N.Y.

Constant Huntington, IV, former chairman of Putnam and Company, Ltd., book publishers of London, died December 7 in his home there. He was 86 years old. Mr. Huntington, who was born in Boston, attended St. Paul's School in Concord, N.H., and was graduated from Harvard College in 1899 cum laude. He studied medicine at Harvard and later architecture at M.I.T., but abandoned both for publishing. In 1902 he joined G. P. Putnam's Sons, Publishers, here and in 1906 he went to London to work for the British branch, which is no longer an affiliate. Becoming chairman of Putnam there in 1916, Mr. Huntington continued in that capacity until his retirement about eight years ago. Until retirement he owned a controlling interest in the company. Under his direction Putnam published "All Quiet on the Western Front" and the works of Isak Dinesen. He was a member of a literary circle which included the late Mrs. Gladys Parrish Huntington, his wife, who was the author of the novel "Madame Slario," and Henry James. Although Mr. Huntington remained an American citizen, he was active in London civic affairs. He was a member of the Athenaeum Club there and the Harvard Club, both in England and America. Surviving are his daughter, Mrs. Brian Urquart of London; a sister, Miss Catherine S. Huntington of Boston; three brothers, Dr. Henry B. Huntington of Providence, R.I., Dr. James L. Huntington of Hadley, Mass., and the Reverend Paul Huntington of Richmond; and three grandchildren.

We will keenly miss our enthusiastic classmate, **Hewitt Crosby,** XIII, who passed away suddenly on September 21, at his home in Sarasota. During his early employment in New York, he was closely associated with **Bill Lounsbury,** VII, at the newly organized M.I.T. Club. He was active during World War I for New York Shipbuilding at New Orleans, and later with the Foundation Company at New York. About 1927 he moved with his family to Tucson, Ariz., and spent several years there but returned to manage the Port Jefferson Shipyard, Long Island. When the Depression arrived and yachts became too great a luxury, Hewitt entered the teaching field and acquired his M.S. in civil engineering at Columbia University in 1933. Instead of teaching, he went to Washington, D.C., with the N.R.A. and later the Home Owners Loan Corporation. In 1941 he again entered the Navy Department, Bureau of Ships, until April, 1945, when he retired to a beautiful home in Thurmont, Md. For 10

years, Mr. and Mrs. Crosby spent the warm months in Thurmont and winters at Lauderdale-by-the-Sea, Fla. They later sold their home in Thurmont and bought a house in Sarasota, where they enjoyed retirement until September, 1962. He then envisioned a wonderful rest at a new house in Bradenton, Fla., but was able to fulfill this desire for only six weeks before his death. Hewitt loved the outdoors and for years was active in the Green Mountain Club and the Audubon Society of Sarasota. He found time for active community work wherever he lived—from volunteer fireman at Port Jefferson to the Lion's Club in Thurmont. In Sarasota he was a member of the Ivy League Club and a patron of the Players Group; throughout his life he was a devoted member of the Congregational Church. He leaves his loving wife and many children and grandchildren.

Jim Welsh, VI, from his home at P.O. Box 917, Winter Park, Fla., writes an interesting commentary on the educational exhibits in the lobby of Kresge Auditorium and the unique science demonstrations performed by the audience from their seats at Alumni Day last year. The symposia this year were concerned with the "Revolution in Education," with demonstrations in primary, secondary and college level science teaching methods. The small instrument which measures the amount of electricity in one's body by holding the terminals in the hands, brought back to Jim the memory of early electricity studies in the company of Byron Clingerman, '04; they enjoyed this caprice with a home-made D'Arsonville galvanometer, placing the terminals on their tongues. Jim concludes by telling us that he is chairman of the Program Committee for the University Club at Winter Park and as such holds three meetings a week, thus creating for him an almost full time job.

The 'piece d'honneur' arrives with a recent Wilton, Conn., bulletin, portraying a glowing picture of **J. Tyrrell Cheney,** II, and Mrs. Cheney receiving an embossed scroll from the first selectman and accompanying gift, on John's retirement from public office. He retired from business almost five years ago to assume the position of Wilton's top planner. . . . The accompanying article amusingly suggested that Sir Tyrell will "have a lot more time for golf and may even become a pro." At least he's got the equipment for it, including a new putter with a sterling silver head, which he received as a retirement gift. He says that what he needs more is a 'longer' driver, since his drives don't go out quite as far as they used to. But he must keep that 14 handicap, which the young octogenarians maintain at Silver Spring Country Club. Mr. Cheney's associates at town hall surprised him with a farewell luncheon, November 2. Mr. Vincent Tito, Sr., made a date to take him to lunch on the last day of his full week in the planning-zoning office. Instead of heading for a restaurant, Mr. Tito led his guest into the Search Room where they were greeted by Mrs. Cheney, all the town hall officials, other incumbents and former town officials. The long work table in the center of the room sagged under the luncheon, prepared by the town hall women. Mr. Cheney received the scroll and silver headed putter, on which was inscribed: "J. Tyrrell Cheney, in appreciation from your friends at the Wilton Town Hall, November, 1962."

Mr. Cheney's retirement party marked the close of 11 years of service as a Wilton planner. He was appointed to the Planning Commission to fill a vacancy a few months after it became effective in Wilton, June, 1951, and he has since been elected to two five-year terms. Upon the retirement of the first chairman of Wilton's Planning Commission in 1957, Mr. Cheney became chairman, and when the Planning and Zoning Commissions were combined this year, he was named head of the joint commission. In addition to service on the commission, however, Mr. Cheney has been Wilton's unofficial and unpaid planner for about six years, supervising the work of the planning office. Starting with evenings and Saturdays in 1956, he sharply increased the amount of time he devoted to town work in February, 1958, when he retired from his consulting engineering business and as eastern representative for the International Rustproof Corporation of Cleveland. At first he kept the office open one or two days and week and by this year he was devoting four full days a week to town planning and zoning affairs, in addition to the many evening meetings—all without pay. Mr. Cheney now plans to devote most of his leisure to golf at Silver Springs and in Williamsburg, Va., where he and Mrs. Cheney spend two or three weeks from time to time, taking care of his home and grounds and "putting and puttering" as he calls it. But for a while at least he will still be available for town planning until a full time professional planner is acquired.—**John J. A. Nolan,** Secretary, 13 Linden Avenue, Somerville, Mass.; **Augustus H. Eustis,** Treasurer, 113 State Street, Boston, Mass.

'04

One bright spot for class secretaries in the Christmas season is the pleasure of getting a few items of news to record. A combination of cards received by your secretary and/or treasurer are hereby acknowledged with thanks. Unfortunately some of the items are not too cheerful. **Bill Eager** has a bad hip which necessitates the use of crutches. However, he keeps busy painting pictures, some of which bring compliments. . . . Wava **Whittaker** writes that **Jack** is in poor condition. His eyesight makes reading difficult and he uses a "walker" for getting about. . . . On the other hand, **Clarence Williams** reports that he and his wife are both well and that he still attends to his business. They have taken two trips to Vermont recently. . . . **Bernie Blum** is in good shape and is planning to help celebrate our 60th Reunion in June, 1964. . . . **Maynard Holcombe** still keeps in trim with a daily round of golf and reports seeing several '04 alumni who live in Florida at least part of the year; viz., the Marstons, the Coupes and Newells. The last named are now on a trip around the world on a freighter. . . . **Myron Dole** visited Florida in July. . . . Alice **Hadley,** widow of our classmate **Walter** still lives in their beautiful home. Maynard also mentioned the fact that our 60th comes up in 1964. . . . **Harry Rollins** says: "Hope to see you on our 60th if not sooner." . . . **Stan Skowronski** reports that he was made an honorary member of the Electrochemical Society last spring. . . . **Frank Davis** and wife are helping to keep Michigan on the map. . . . **George Kaiser** and family are planning to visit Boston again next year. Others should follow his example.

Bob and Margaret **Phinney** are among the very few if any of our class who still have children in school. Their younger son is a student at the University of Rochester. Their older son, after graduating from M.I.T., received a Ph.D. last June at Caltech and next moves to Princeton as associate professor of geophysics. . . . **Ralph Hayden** and wife are feeling so well that they are worrying about it. Ralph passed his 80th birthday on June 4 and is complaining that The Review failed to record the fact in its usual column of alumni birthdays. . . . Please note that three of our classmates mentioned above have pointed out that we have a 60th reunion coming up in 1964. This seems a long way off and much can happen in that time but keep it in mind, for before 1963 is out we must know what kind of a celebration you would like.

We must now record the passing of two classmates. **Reggie Wentworth** died at Frederick, Md., on December 10, 1962. You will recall that he was very active in class affairs during student days and will be pleasantly remembered by many of you. He had a distinguished career after graduation. A note of sympathy has been sent to Mrs. Wentworth in your behalf. . . . Another popular classmate, **Phil Sweetser,** died at Philadelphia, on November 29, 1962. . . . As a final word may we suggest that the early part of these notes makes better reading than the last two items. Why not let us know now and then what you are doing instead of waiting for someone else to send an obituary?—**Carle R. Hayward,** Secretary, Room 35-304, M.I.T., Cambridge 39, Mass.; **Eugene H. Russell, Jr.,** Treasurer, 82 Devonshire Street, Boston, Mass.

'05

You were probably surprised at finding no class news in the February issue. You will be reading here a double dose; that is, if I am not late in getting in this copy. First comes the February news.

It is discouraging to a secretary, who is always scouting for news for this column, to receive four and five pages of typewritten personal news from classmates only to find it necessary to condense them drastically, due to the fact that the writer requests that he not be quoted and that the editor could not

possibly have the necessary space. I have two such letters in my recent mail. To me they are intensely interesting; to a few special friends of the writers they would be equally interesting. I am sure the writers would be perfectly willing to have such friends read these letters and I have offered previously to have duplicates made on request. . . . **Hal Robbins,** I, writes me that on a medical checkup a compression fracture of a lumbar vertebrae was discovered by X-rays. A special back brace was ordered, which although heavy and cumbersome and uncomfortable in hot weather, he has worn ever since with no appreciable betterment. However it did not deter him from making a trip last summer to Hawaii, where he lived for many years. On his return he participated in several "Dons Club" tours, which he has described so interestingly previously. Here is an abstract from his letter concerning a visit to the Navajo trek: "Here also is the Tribunal Council Chamber of the Navajo Tribe where our party was invited to assemble, and was addressed by Mr. Paul Jones, Chairman of the Tribe, and other representatives of the tribe were on hand to answer questions. Everyone was most cordial and hospitable. The organization of the tribe is an interesting combination of private enterprise, socialism and communism, which seems to work well for them and might perhaps be workable in wider fields. It would be an excellent subject for a thesis by a candidate for a doctorate in the social sciences." Hal is apparently very comfortably domiciled in the Desert Crest Retirement Home for Senior Citizens, in Phoenix, Ariz. . . . Right now, with the temperature hovering around zero (same in Florida as I read today's paper), I am reading a letter from **Roy Allen** (Banning, Calif.) which says: "Autumn has arrived and the leaves are falling and blowing. We have not sat out on the patio since Thanksgiving day, for the temperatures have been mostly in the 60's (70 today). Flowers are still in bloom, the roses better than usual, bulbs are up and two of them already blooming. The pyracantha hedge is covered with red berries." Roy and Grace are apparently in good health. He says "Nonproductive and lazy." Who has a better right?

Since the last writing I have received a sort of family letter from Ethel and **Prince Crowell:** "We have had an extraordinary year. In January we had a week on Bull Island, S.C.—a Mecca for bird lovers. In March we spent a week on Swan Island, a little known United States possession near Honduras. We found much new information on our continuing research on the Woods Hole Pacific Guano Company. In June our oldest grandchild, Persis Ann Crowell, married James Allen Gesseman on their graduation from Earlham College. They are studying at the University of Illinois. In October our first great-grandchild, Prince Richard Crain, was born in Woods Hole where his father is in the Coast Guard. We had a gay Thanksgiving here with Persis' family—18 of us. We hope to spend Christmas with Sears' family. In February we are planning a cruise in the Mediterranean on the 'Oslofjord.' Our other grandchildren are in school; Polly, a junior at Earlham College; Lucia, a senior at Falmouth High; Prince Sears, 3d, a junior at Indiana University High; Carl, a sophomore at Wilbraham High." Those who reuned regularly with us at various points on Cape Cod will be interested to know that Isa **Barrier** has sold their Barnstable house and gone back to Weston, Mass.; the address is 91 Concord Road.

My reference to our football teams in 1905 and 1906 got a rise from **Laurence Fuller.** What a full-back he was! Since the death of a housekeeper, who had been with him for 24 years, Laurence has entered a rest home at 14 Chaucery Court, Lynn, Mass. He adds, however, that he has not literally retired as he goes to the office every morning. . . . **Ted Steel's** new address is 38 South Sixth Avenue, Apt. B2, La Grange, Ill. He and Edith send the same old warm and hearty greetings. . . . **Fred Poole,** VI, reports that his wife Dorothy has finished their movie short, covering a period of two years from Maine to the Gulf of Mexico, titled "Molluscs and Sea Shell Secrets" (90 minutes). This I'd like to see and hope to on my next trip their way, Woodbury, N. J. Fred has written a book "Birding Tips for Adult Beginners", which is now (December 12) in the hands of his publisher. . . . **Joe Daniels'** book on "Mining" should be coming into print about now. Any more budding authors to report? . . . Along a similar line I have just received from **Gilbert Tower** four place mats depicting scenes around Plymouth in the Mayflower days. They are very nicely done and decorative. He said he intended to market them locally, and I suggest you write him for further information. His address, perhaps you've noticed, is at the bottom of these notes. . . . I have just had an interesting experience, serving on the Superior Court jury at Ossipee, N.H. I had never served on a jury before and enjoyed it a lot. I have also accepted the chairmanship (president) of the Sandwich Home Industries, the oldest Arts and Crafts Guild in N.H. We sold at our very interesting shop over $20,000 worth of member-craftsmen's handiwork in the summer of 1962. My duties? I don't know. They tell me there's nothing to do, but I've heard that before.

I quote from a Portland, Oregon, paper **"William Hamblin Crowell,** partner in the former Portland architectural firm of A. E. Doyle and Associates, died Saturday at his home, 2454 S.W. Sherwood Drive. He was 85. He was associated with the firm from 1919 until its dissolution in 1943, and with its other members, D. M. Jack and Pietro Belluschi, helped in the design of numerous Portland buildings. Among the buildings designed by this firm were the Public Service Building, Pacific Building, Pittock block, United States National Bank, Central Library, Art Museum and Reed College. Mr. Crowell was born March 1, 1877, in East Dennis, Mass., and received his architectural training at the Massachusetts Institute of Technology. He came to Portland in 1908. In connection with his profession, he was a fellow and former regional director of the American Institute of Architects, and was one-time president of the local chapter. Outside his career, he had an enduring interest in bird life, and bird watching. He was president for many years of the Oregon Audubon Society, and was instrumental in securing the Pittock Bird Sanctuary, where he designed the Audubon Clubhouse. In recognition of his work he was made the first honorary vice-president of the Oregon Audubon Society in 1960. He was also a member of Oregon Genealogical Society."

Certainly space limitations will not allow me to acknowledge all Christmas cards, so I hope the 50 '05 families who sent cards will accept this as a thank you. However, considerable news was gathered from the notes on many cards. . . . **Piggy Bartlett,** in acknowledging his 80th birthday last September, says he and Lucy are in good health and that he is still trying to play golf. . . . **Bob Beard** writes from Berkeley, Calif., that he is making a distribution of sets of 86 of his geometrical patterns to see whether they merit publication. He sent me a set of tetrahedrons, or something, many years ago, and I considered them works of art, without even comprehending what they mean to a mere 1905 S.B. Good luck Bob. . . . From the **Cronkhites** came a large photo, showing **Leonard** and Beatrice in miniature in the corners with all the progeny, including six grandchildren. A very remarkable family. . . . **Walter Eichler** says: "What about this 80th birthday stuff? I have over a year to go." . . . **Sam Seaver,** from Markham, Ontario, writes: "Celebrate my 81st in September and am in the pink." . . . The card from **Willard** and Mary **Simpson** was one of the prettiest ever, showing the state flower, the Blue Bonnet of Texas, in living color. I wish I could quote in full Willard's four-page letter of December 12, but again space will not permit. He speaks of leaving the office at noon, spending the rest of the day hunting wild turkeys or deer, etc. "Of course, it is quite disconcerting to leave an office, busy as the dickens at noon, drive 75 miles to the hunting ground, get out of your car and get into a blind at just about three o'clock." And again: "we were quite honored the first of the year, by being selected to check the plans for the tallest building in Texas, being built now in Dallas, the 50-story First National Bank of Dallas Building. It so happened that the CAA limited the building to a little under 700 feet, and the bank insisted on having 50 stories. It took pretty ingenious figuring to take care of a heavy beam with an enormous bending moment on it due to the wind pressure. You know, there aren't many 50-story buildings built around here, and I'm glad to have the name of W. E. Simpson Company on one of them."

Ray Walker, II, says "Cheer up. I'm two years ahead of you. Feeling fine and enjoying nature on the banks of the Schuykill at Port Indian." A picture of Ray with his beautiful garden seems

to prove his good health. . . . **Chet Shaw** says: "I first became acquainted with you at lunch time, downstairs in Walker. My lunch was in a folding tin box, carried in a green broadcloth bag with my books. Remember?" Do I remember? There were also Bill "Cider Mill" Gerry, '04, Chester Greene, '04, **Jack Flynn** and various others at times. Chet Shaw also tells of taking their trailer last summer to the mountains of western North Carolina for three months, thence to a cottage at Buzzard's Bay, Mass. He adds, "we are both well and as reasonably happy as old people can be." . . . **Frank Chesterman** writes: "My daughter's daughter, Nancy, was married to the son of the superintendent of Schools in Bronxville, N.Y. He graduated from Amherst in June and is now studying business administration at Harvard. She is working with IBM in Boston. My son's department at Bell Labs, along with several others, was moved to New Jersey and he is now living in Red Bank. His oldest daughter will be married next month to a teacher and athletic director and they will live in Michigan. His middle daughter entered Northwestern in September. Both of Mary's daughters are living near us in Philadelphia. Just now I am serving as vice-president of the Philadelphia Divinity School and as a member of the standing committee of the Diocese of Philadelphia, busy with a building program." What did you do before you retired, Frank? . . . **Harry Kendall** writes: "Last night we had the customary family party at our home; there were 12 including three grandsons and three granddaughters, four in college, including one girl, Christine Randall at Bradford College."

Family Christmas letters are getting very popular. I wish I could quote entirely the one received from **Norm** and Evelyn **Lombard.** Evelyn has been teaching (part-time) french and music at the Lauderdale, Fla., Country Day School. Ski is still busy with one of his babies, the Broward County Joint Committee on Basic Citizenship. Following preaching on "Get into Politics," he filed for committeeman in his precinct and won. During the summer they took the journey north to visit children and grandchildren, to Williamsburg, to Scarsdale (their old home), and Washington, D.C. This is a very short and poor resumé of their Christmas letter, but their home address is 620 N.W. 34th Street, Fort Lauderdale, Fla. . . . With **Bob Young**'s (V) Christmas card came a picture of Bob's progeny, two sons and five grandchildren. Bob says: "I'm fine for the shape I'm in. Did not catch up with **Charlesworth,"** if you can interpret that. . . . I am supposed to be an impartial secretary, but I was immensely pleased with **Herb Bailey**'s Christmas letter to his family. I must quote: "I am blessed with much to make me happy, many old friends and some new ones, enough tasks to keep me from counting the years passed, the four score already allotted me and reasonably good health. The outstanding blessing this year was the 65th year Reunion of the Bailey clan at Colter Bay, Jackson Lake, Wyoming. A most happy week for four brothers and their families—30 altogether. Laura Moore, my eldest granddaughter, is in Peru this fall with a group of fellow students from Lewis and Clark College. They live in the homes of native families and study with their instructor at Peru University. Edgar's eldest daughter, Kathie, is a freshman at O.S.U. County Civil Service and school board duties still take me to San Bernardino several days a month. At present I have given up teaching ceramics at Chaffey College." . . . **Andy Fisher,** X, writes that one of his most enjoyable Christmas gifts was a little children's book entitled "Nobody Listens to Andy." No comment, but you can toss it around a bit if you wish. He says that Houghton-Mifflin Company will publish, probably in the fall, his daughter Edith's book on the life of Laura Bridgman.

I have two deaths to report. **James M. Lambie,** II, died in Washington, Pa., on July 3, 1962. I am quoting from a local newspaper. "James M. Lambie, 79, former president and more recently chairman of the board of Findlay Refractories, had resigned as president of the company last November after serving as the head of the industry since 1925, when it was known as the Findlay Clay Pot Company. He attended Washington Jefferson College and the Massachusetts Institute of Technology, joining the Findlay Clay Pot Company in 1908. He was a member of both the American and British Ceramic Societies and held 14 patents in the ceramics field. Mr. Lambie was president of the Jessop Steel Company for several years, also president of the Pennsylvania Economy League. He devoted much time to the Central Family Service, now known as Family Service of Washington, serving as director for many years and as budget chairman. He was a trustee of the Washington YMCA and the YWCA, also an elder in the Presbyterian Church. Surviving are two sons, Dr. Joseph T. Lambie of Weston, Mass., and James M. Lambie, Jr., A CARE executive in Washington, D.C.; and six grandchildren." I am indebted to J. Earl Frazier, '24, for the above clipping.

I must also record the death of **Walter B. Cain,** XIII, of Whitinsville, Mass. From a clipping from the Worcester Evening Gazette: "Walter B. Cain, 80, died in the Memorial Hospital, Worcester on January 6, 1962, after a short illness. He was born in East Weymouth, Mass., lived in Whitinsville 40 years, was a graduate of the Massachusetts Institute of Technology. He was previously production engineer at the Baird Machine Company, Bridgeport, Conn., then a consultant engineer in New Haven. He was production engineer at Whitin Machine Works for 20 years, retiring 18 years ago. Besides his widow, he leaves a daughter and two grandsons." I am indebted to Phil Walker, Secretary and Treasurer of '07, for the above clipping.

Winter really hit this section of New Hampshire on the last two days of December. By the time you read these notes, the evidence of destruction to our forests will have been partially cleared up. There is a 75 foot pine with a 30 inch diameter butt that is resting at present on the roof of our summer cottage at Lake Winnepesaukee, nine miles away. Damage to the cottage is slight but we await our turn for removal as our summer neighbors are much worse off. Locally many families were without current or telephone service for several days, resulting in frozen pumps, radiators, house plumbing, etc. Lest some of your friends, who chose southern climes for retirement, gloat, I have just received a letter from a New Hampshire native who bought in Florida 20 years ago and lived there winters ever since, and who writes: "From now on we winter in New Hampshire. I'm selling my place here. I can keep warm and get the benefit of my crops in New Hampshire."—**Fred W. Goldthwait,** Secretary and Treasurer, Box 32, Center Sandwich, N.H.; **Gilbert S. Tower,** Assistant Secretary and Treasurer, 35 North Main Street, Cohasset, Mass.

'06

Another winter wonderland greeted us this mid-January morning, and this one is of sparkling crystal. With the temperature at or below freezing for the past two days, mist and drizzle has coated every twig, every blade of grass, even every pine needle, with a coating of glittering ice. Marion and I have been driving around town and with full sun, it has been a fairyland everywhere, and just impossible to describe. The beauty and variety of Christmas cards is truly intriguing, and they are gratefully acknowledged, especially those from Vera Philbrick, Agnes Coes, Nellie Cady, and Anne Darling. The **Bob Roses** had a clever and fitting poem on theirs: **Stod Pulman** was making good progress recovering from an operation last summer; **Burton Kendall** recalled their pleasant association at Endicott House with **Terrell** and Elizabeth **Bartlett** during our 55th Reunion. . . . **Jack Norton** sent a long letter from Tryon, where he and Margaret "are staying close to home for a time," that was mostly about **Henry Carruth,** whom he had gotten to know during sophomore year, both being Course V. . . . Along in December came a letter from **Bob Cushman,** who has been unable to locate a picture of the 'Spray'—the first steam trawler, he says, that was built and operated in the U.S.A. His uncle, Harrison I. Cole, II, '91, was with Fore River when the 'Spray' was built there.

Referring to **Fred Guest,** whose death was reported in the February notes, I promptly sent to Mrs. Guest a letter expressing the sympathy of the class and regretting the few years that she and Fred had to enjoy the 300-acre "show place farm," Indian Acres, they had acquired from Mr. Goss in Newfane, Vt. . . . Another death notice came from the Alumni Office a few days ago, of **James Garfield Riley,** V, with no date, simply "in 1962." As he had been affiliated with several federal departments in Washington and was retired as a major after W.W.I., I am hoping to obtain more information about his career for the

April notes. . . . The day after Christmas we were pleasantly surprised to have a phone call from **Stew Coey** and the next day Marion and I spent awhile with them at their son's home in Wellesley, Junior and his wife making it quite a party. It was nice to find Betty in the pink again and to catch up on doings, as the Coeys and we had both missed our usual reunion on Alumni Day last June. We have also had a phone chat with **Jim,** who has quit driving but gets around. Send a card, when you get around to it.—**Edward B. Rowe,** Secretary-Treasurer, 11 Cushing Road, Wellesley Hills 81, Mass.

'07

I hope the men of '07 noticed the fine picture of our president, **Don Robbins,** that appeared on Page 35 of the December 1962 issue of The Technology Review. I spent most of my time with Don at the Fourth Annual Alumni Officers' Conference and was amazed at the vast number of M.I.T. men he could call by their first names, from the president down to some of the undergraduates. We are very fortunate to have a man of Don's calibre ats the leader of 1907. . . . A letter from **Lester Brock** did not contain good news. He had a serious major operation early in November and has had a very slow recovery. To quote from his letter: "I am as weak as a wet paper doll and have hardly strength to push these typewriter keys. "I suggest that right after reading these notes you send a card or letter of encouragement to Lester. . . . **Ed Lee** wrote me from his new home on Captiva Island, Fla. He reported the temperature there went down to 31 degrees in December but was back to a comfortable 84 degrees Christmas Day. There are no telephones on Captiva Island, so Ed is looking forward to using the new microwave phones that will be installed later this year. In his letter, a clipping was enclosed from the Fort Myers News-Press, indicating that **Ralph Hudson** had recently lost his wife. The clipping reads: "The paintings of the late Mrs. Ralph G. Hudson will be on display at Fort Myers Beach Sunday when the Beach Art Association presents a Clare C. Hudson Memorial Show at the Pelican Gallery on Crescent Street. The show will be open Sunday and daily thereafter untill further notice from 2 to 4:30 P.M. Mrs. Hudson, a graduate of the Massachusetts School of Art, studied also at the Thurn School of Modern Art, Boston, and with Sam Thal and Carl Nelson. She was a member of the Boston Institute of Contemporary Art, the Newton, Mass., Art Association and the Beach Association."

You will have read in the February Review, '07 notes, information about **Ernest Altgelt.** I have had further correspondence with him and also received a check for class dues, which was much appreciated. . . . The class notes can only be of interest if the members of the class furnish me the information to make them so. We had not heard from Ernest for many years, but his letter was an example which many of the class members could follow; and I urge you to do so in the weeks ahead. Under the 1911 notes in the December issue of the Review, I found my name mentioned. Many of the '07 men will readily recall O. B. Denison, '11, who sparked many Tech gatherings with his ability to lead cheering and singing. He was a close friend to our class, attending a number of our get-togethers. I knew him well during his business activities in Worcester, with the Chamber of Commerce and as manager of the Bancroft Hotel. My son Bob (Bates,'37) was married to Denny's daughter Helen in the family home in Cornish, Maine, last July 26. As she had been previously married, I gained not only a delightful daughter-in-law but a grown family of four grandchildren. It is indeed a small world.—**Philip B. Walker,** Secretary-Treasurer, 18 Summit Street, Whitinsville, Mass.; **Gardner S. Gould,** Assistant Secretary, 409 Highland Street, Newtonville, Mass.

'08

Our usual January dinner meeting at the M.I.T. Faculty Club was not held as several of the regulars were vacationing in Florida and others were laid up with winter colds, etc. We will probably not hold our March meeting for the same reasons. We will try to get together for a meeting in May, as by then vacationers will have returned and those laid up now will be cured. . . . How about the Alumni Fund? To those who have subscribed, many thanks. To others, please do so soon. '08 has always done well in the past. Let's keep it up!

Remember we celebrate our 55th Reunion in June. We will be at the Melrose Inn, Harwichport, Mass., on the Cape, June 7, 8, 9. Monday, June 10 is Alumni Day at Cambridge. Plan now to be with us and see old friends.—**H. Leston Carter,** Secretary, 14 Roslyn Road, Waban 68, Mass.; **Joseph W. Wattles, 3d,** Treasurer, 26 Bullard Road, Weston 93, Mass.

'10

During the Christmas holidays, **Harold Akerley** made me his annual welcome visit. He claims he has retired but continues to keep busy with a part time consulting practice. I feel that he feels he has retired, as he has given up his residence and is now living in an apartment. I asked him about classmates in the Rochester district, and he said he had attended **Herbert Fowler's** 50th wedding anniversary last summer. The class members extend to Bert our heartiest congratulations. . . . I had a card from **Frank Bell,** who appears to be dissatisfied with climatic conditions in Texas. First the drought and then floods the next year causing crop failures in his orchards. **Walter Spalding** is enjoying his retirement in Honolulu, and is looking forward to his annual summer visit to Boston. . . . **Ralph Horne** is still active in his business as well as in civic activities as noted in The Mercury (Medford, Mass.), as follows: "Ralph W. Horne of 14 Winn Terrace, Malden, was re-elected president of Fay, Spofford and Thorndike, consulting engineers of Boston, at the annual meeting of the corporation. He has previously served six terms as president of the firm. Mr. Horne is a former member of the Common Council from Ward 3. He is presently vice-chairman of the Malden Redevelopment Authority, a trustee and auditor of the Malden Public Library, a director of the First National Bank of Malden, and president of the Davenport Memorial Foundation."—**Herbert S. Cleverdon,** Secretary, 120 Tremont Street, Boston, Mass.

'11

The following quotations are from a fine four-page Christmas brochure from **Paul Cushman,** VI, and his wife Ottilie, of Oklahoma City, showing events and activities for 1962. They said: "We thank you for all the cards and letters. We ourselves are well. Paul's contract at Tinker Field Airforce Base, Midwest City, was renewed in November for the fourth year, and he continues at the L.&S. Bearing Company here. He is secretary of his Kiwanis youth project at Binger, deputy governor of the Oklahoma Society of Mayflower Descendents, and was a club ticket chairman for the State Square Dance Festival. He went to Binger, once with Ottilie, for the dedication of the clubhouse, and made quick Masonic trips to the Scottish Rites at Guthrie, Tulsa, Bartlesville, Norman, Ardmore, and Duncan. Paul also lunched with his M.I.T. classmate, **Bill Warner,** I, of Nowata. Paul's name appeared in 'Leaders in American Science,' and he gave a paper recently on 'Manufacture and Testing of Roller Bearings' for the American Society of Tool and Manufacturing Engineers. In January we went with a party of 54 members and friends of Funtimers Square Dance Club by way of San Francisco to Honolulu by jet. We called on Paul's M.I.T. classmate **Frank Smith,** III, whose home is in Honolulu. We returned by way of Los Angeles, which, with 21 suburbs, including Hollywood, is the largest city in area in the country. In March we were again delegates to the Central District Square Dance Conclave at Lake Texoma State Park, and in April delegates to the Southwest Unitarian Conference in Austin, Texas. June 2-3 we spent with the 89ers Square Dance Club at Roman Nose State Park, and in June also took our annual trip to the National Square Dance Convention at Miami Beach, Fla. Nine states were represented on our Oklahoma special train. We had 15 sight-seeing trips, including Procter & Gamble in Dallas and Bellangrath Gardens in Mobile. In August we flew to Benton Harbor, Mich., for Ottilie's high school class reunion. Seven out of 36 classmates, one wife, and three husbands of members attended. This fall we danced with Fun-

timers at the county home here and went with some of them to Fort Worth to the North Texas Square Dance Festival, and attended an M.I.T. Alumni Dinner at Tulsa, with a group." The foregoing quotations are about 10 percent of the total brochure. Paul and Ottilie sure get around.

The following are quotations from the card from **Frank Smith,** III, Honolulu, who was referred to in the February Review: "I'm doing fairly well with the staff I lean on—my good wife. I think I'm older than most of my classmates; on February 28 I'll be 78. I worked for four years before getting to M.I.T., most of the time 60 hours a week for 15 cents an hour. In Boston I lived on the third floor in a house on Rutland Square for $2.00 a week, and got nearly all my meals nearby on Columbus Avenue at Mrs. Mooney's Select Dining Room, where I used a meal ticket and ate 21 meals for $3.50. Once I went to Pink's Restaurant nearby and got a whole pork tenderloin, split and broiled with fixings, apple sauce, potato and pie, for 65 cents. In Honolulu I have enjoyed a fine crop of mangos and bananas. The coconut palm, now five years old, has just begun to blossom only three feet from the ground. At our nice home we have a view of the Koolau mountains about three miles distant and 2,500 foot elevation." . . . A letter from **O. W. Stewart, I,** said: "In connection with the 1911 class agent correspondence, I have had interesting letters from **Frank Smith,** III, Honolulu; **Norman Duffet,** X, Lake Worth, Fla.; **Harry Tisdale,** V, Fort Meyers, Fla.; all apparently enjoying life. **Alex Yereance,** I, of Falls Church, Va., continues to have his summer address with his daughter at 27 Old Wharf Road, South Harwich, Mass. On a recent Florida trip we had an enjoyable visit one afternoon with **Guy W. True,** I, at Raleigh, N.C., where he is actively connected with a local engineering firm."

A letter from **Obie Clark,** II, gave the following information: "I had a Christmas card from **David Allen,** II, apparently written by his wife but signed by both, from which I quote: 'I had hoped to write you long before this, but a stroke in September of last year (1961) left my right side paralyzed. I am slowly regaining some use of my right leg, but almost no use of my right arm. I'm still working at it and hope another year will better the situation. Mary and I are in good health and are getting along all right. Fortunately our daughter and son-in-law and family are close to us and can help out as necessary.' . . . As far as Alma and I are concerned, we are in good health but gradually slowing down with age though we do not think of ourselves as old. As you know I am still working an average of four short days a week and want to keep on as long as the boss will have me. I have been treasurer of the church to which I belong for the past three years, but will be through at the annual meeting next Tuesday. As I am sole nominee for moderator for the coming year, I'll still have a finger in what is going on. Here is hoping you are better than ever."—**Henry F. Dolliver,** Secretary, 10 Bellevue Road, Belmont 78, Mass.; **John A. Herlihy,** Assistant Treasurer and Treasurer, 588 Riverside Avenue, Medford 55, Mass.

'12

Professor **Erwin Schell** spoke in Toronto before a gathering of Canadian investment managers and outlined the requisites for the maintenance of sound management. To quote: "Of greatest concern to us is the ability of the organization to deal with the inevitable complexities which growth always engenders. A current cause of difficulty in more than one organization has been inability to adjust to the more intricate and interrelated ramifications that accretional growth has introduced. Growth, unless intelligently managed, may be confusing rather than constructive." Erwin has recently moved to Norwich, Vt., where he is living at an excellent address, Meeting House Hill. He would be glad to see any of his old friends there, come spring. . . . **Jim** and Mrs. **Cook** spent a pleasant two weeks on Mt. Desert Island at the Appalachian Mountain Club, Echo Lake Camps. From there they went over to **Harold Brackett's** summer home and fished at Lake Sourdnaliouk in Baxter State Park. Jim is still a sea clam digger on the beach at Marblehead when the low tides permit him to get out far enough to find the succulent creatures.

Jay and Priscilla **Pratt** are at Acapulco, Mexico, for their 23rd season. In June they are flying to Copenhagen where Priscilla will represent the United States at the International Girl Scouts' gathering. . . . **Gene Marceau,** who was bothered by a sore foot at M.I.T. in June, stopped off to see a doctor in New Jersey. After considerable X-raying he had one big toe removed. He reports he is now getting about without missing it. He is in good shape and is looking forward to our 55th Reunion. . . . **Harris Dexter** writes that he is working as hard as he can, but he can't keep up. In his spare time he is continuing his study of Japanese and now dusting off his Spanish vocabulary. In addition to this, he always tries to take one additional course and this year it has been "Adult Education in History" and "Background of Latin America." He is quite active in Masonry in Northern New York and drives about 500 miles a month in this department. After leaving the reunion last June, he went to the Girl Scout Roundup in Vermont, where he took about 200 pictures, and then spent a month in Canada and Northern Maine. It sounds like a very busy life to me.—**Frederick J. Shepard, Jr.,** Secretary, 31 Chestnut Street, Boston 8, Mass.; **John Noyes,** Assistant Secretary, 3326 Shore Crest Drive, Dallas 36, Texas.

'13

The notes for the February issue of The Review were received too late to be included. Our apologies for the omission. . . . The 50th Reunion Committee for the Class of '13, M.I.T., has met and several subcommittees were appointed. The local Boston Committee together with most of their wives will serve as a registration and reception committee. **Charlotte Sage** heads the Ladies' Committee; Charles Brown, Al Brown and Charles Thompson are in charge of entertainment. Ellis Brewster, Charles Thompson and Joseph Cohen are responsible for the Class Banquet. Transportation from or to Boston and the Oyster Harbors Club is in the capable hands of Hilding Carlson, Burton Cushing, and David Stern. Publicity and Budget will be entrusted to G. P. Capen, W. N. Eichorn, and Francis Achard. Remember the dates: Friday, June 7 through Monday, June 11, 1963, at M.I.T., Oyster Harbors and then back to M.I.T. . . . Have you signed up yet? Already at this early date, we have received word, orally and by letter, that over 90 classmates and families expect to celebrate in June. Briefs came in with the dues. **George Dempsey:** "Hi Phil, check enclosed, George." . . . **Bill Mattson:** "Hi, Phil. Hope you get a good return and enough cash for your notices for the reunion." . . . **Ralph Kennard:** "I suppose we will get more information next spring." (referring to the reunion) . . . **Charlotte:** "read our 'book'—Sorry I did not start with the class freshman year—I probably would have been too frightened to go on." . . . **Harold Green,** in part: "Since I only attended M.I.T. one year and am now retired, I feel that I should not be considered a full fledged member of the class and do not desire to continue as such." . . . **Joe MacKinnon:** "Dear Phil. Hope that you and Mrs. are both enjoying good health." . . . **Don Van Deusen:** "I am greatly enjoying the letters and announcements on the forthcoming 50th class anniversary, and I think the 'Class History' is a masterpiece. Please give my congratulations to the classmate who produced it. I see no prospects whatever, now, of our getting to the shindig next summer, but I shall enjoy hearing about it." Thanks, Don. Maybe **Jack Farwell** can convince you to be with us in June. . . . **Herb Shaw:** "We have every expectation of seeing you on the Cape next June." . . . **Tom Lough:** "Thank you for the 1913 Class History which I enjoyed greatly. **Lester Gustin** is to be complimented for an excellent job. However, it is depressing to scan the Alumni Register of the class and note the numerous starred names. So many of our classmates have passed on with so few of my closer friends remaining. I hope to attend our 50th Reunion, in June, 1963, the good Lord willing. Presumably, I am one of the few members who have not retired from their vocation to lead a life of indolence and ease." . . . **Phil Burt,** in part: "While I think of it, also, let me congratulate you on the swell job you have done with Class News. You certainly keep us posted on what our classmates are doing. Best of luck to you, and I still am hoping to attend the 50th at Oyster Harbors." . . . **Johnny Welch** pens: "Thanks for the 1913 history book. It was very inter-

esting and well done. Francis and I hope to be at 50th Reunion and will make plans later. We were in Europe for about two months—going over in the 'Queen Mary' and back on the 'Lusitania.' We visited France, Italy, down the Rhine, England, Ireland, and had a wonderfully pleasant and interesting trip. Hope to see you in June." . . . **Clarence Berry** notes: "Thanks very much for sending the '13 Book." . . . **Bob Weeks** writes: "Let me add my word of appreciation for all your and Gustin's efforts in getting out the Class History. I read it completely, and I must say that it brought back a lot of old memories—especially those Field Days with Julie Sanderson and Elsie Janis. I am hoping that my health will permit my return in June, 1963, for that grand and glorious 50th Reunion you and Bill Mattson are planning. Best wishes to you and the rest of the '13ers. P.S. I have just finished a very interesting book: 'Our Human Body, Its Wonders and its Care' complied by the Readers Digest. I think you would find it interesting." . . . **Charlie Thompson** states that his dear wife is improving, in fact we have talked to her several times. So, keep up Ann, because we are counting on your help at the 50th. More comments next month. So, make your reservations for Oyster Harbors Club today if you have not already notified the Reunion Committee.

These past months have been a heart breaking period for your scribe. Through the kindness of Don Severance, '38, we received a Kiwanis notice of the death of our classmate **Alfred L. Higgins** on November 7, 1962; we quote: "Al Higgins was an ardent Kiwanian and a long time member of our club. He was president in 1949 and many of the older members remember his administration and his accomplishments. His work with Kiwanis was characterized by meticulous adherence to detail. He was a faithful attendant, he could be called upon for facts and figures on some Kiwanis sponsored event, and he could relate them from his fingertips. This, we know, was his nature and the result, perhaps, of his years as engineer with the Boston Gas Company, from which he retired just a few years ago. He was a gentleman, a scholar and a graduate from M.I.T., but above all, he was kind and a true example of the meaning of a real Kiwanian. He shall be missed—and dearly." Al was on the Board of Directors, clerk of the Trustees of Permanent Funds, and served on three other standing committees. We, of 1913, were very friendly with Higgins over the years, but we realize why he did not participate in more of our activities. Al was an active correspondent and contributor to our class treasury. We are indebted to Kiwanis; and we also mourn the loss of a dear friend.

November also brought sad news of another loyal and active participant in most of the activities of 1913 including reunions and contributions, in the passing of **Morris F. Hall,** the owner and manager of Hall's Department Store of Edgartown. Morris, following a stay at the Martha's Vineyard Hospital as the result of a previous heart attack, died November 14, 1962, at the age of 71 years. Morris was born in Boston, but spent many years in New Bedford, and the major part of his life in Edgartown. Following his graduation from M.I.T. he was associated with the government as a sanitary engineer; served in World War I; and, following his discharge from service, he was engaged as a sanitary engineer in laying out a town near the steel mills in the vicinity of Coatesville, Pa. In 1928, he returned to Edgartown and became associated with the family enterprise, Hall's Department Store, which he later acquired and managed with great success. Morris was outstanding in his community as a past commander of Martha's Vineyard American Post; a member of the Edgartown Police Benevolent Association; Martha's Vineyard Glee Club; also, the Martha's Vineyard Hebrew Center. He spent many vacations in Mexico. He is survived by his wife, Rose Forman; two daughters, Mrs. David Rappaport of Oak Bluffs, Mrs. Richard Gordon of Marblehead; and five grandchildren; as well as two brothers, Reuben of Boston, Alfred of Edgartown, and a sister, Mrs. Irene Hall Spirt of Edgartown. Morris was buried in the Vineyard Cemetery, November 16 with military honors by the American Legion Post. We shall miss Morris and we extend to his dear family our deepest sympathy.

We received an appreciative note from Azel Mack, Secretary of the Class of 1915, and we quote: "Many thanks for your splendid 1913 Class History. It's an excellent book, well composed and put together. I know it represents a load of work. Your committee deserve a world of credit for putting this out and I know your classmates appreciate your thoughts and efforts and are very proud of the book. We'll use it as a model for our own in 1965!! All the best to you with friendly regards. Cordially, Azel." . . . Through the kindness of Harold Radcliffe, '41 and Don Severence, we have received a clipping from the St. Petersburg, Fla., Times, giving a resume of the life of our classmate, **William Guild,** and the notice of his death on November 20. Bill, although he did not graduate, for 38 years was engaged in real-estate business in Brookline and retired in 1951, moving to St. Petersburg. There he formed, with a few retired friends, a "Walkie-Talkie Club," which developed into a Science Club in 1952 and which later became the Science Center. Bill conducted this center and prepared exhibitions on scientific subjects for various county schools. The Reader's Digest published an article about Bill calling him a "Pied Piper of Science." He and his Science Center received recognition nationally by the Oak Ridge Institute of Nuclear Studies when the Center staged an exhibit at the University of Florida. In 1958, the American Association for the Advancement of Science approved the Science Center as a project. To "Uncle Bill" Guild's family we offer our deepest sympathy. A note has been received from our departed friend's daughter, Florence Guild Nixon: "Your friend William (Uncle Bill) Guild died of lung cancer November 20, while visiting with me. I will be very happy to help you in any way on matters pertaining to Mr. Guild. Thank you most sincerely for your friendship with my father." We shall write very shortly to Mrs. Nixon. Again, the bad news nearly overcomes us as two of our secretary's friends and many other classmates' closest friends have passed away. We shall correspond with their families shortly and give you more details in the next issue. . . . Our former Class Secretary, **Fred Murdock,** was buried on December 17 in Coventry, R.I. . . . Another loyal classmate, **James G. Russell,** 71, 209 Edgehill Road, Milton, Mass., passed away December 18, quite suddenly at his home. Jim was a very loyal and co-operative member of 1913 and lived a very useful life as an executive of the Daniel Russell Boiler Works. He was a town meeting member for over 15 years, chairman of the Milton School Committee, and recently master of the Union Lodge, A.F. & A.M.; he also served as a director and trustee of the Dorchester Savings Bank. He lived in Milton for 36 years. James Russell is survived by his dear wife, Gladys (Parker); two sons, James G., Jr., and Daniel; and five grandchildren. To the Russell family we extend most sincere sympathy, for we of 1913 share with you the great loss of a friend and classmate.—**George Philip Capen,** Secretary and Treasurer, 60 Everett Street, Canton, Mass.

'14

The prize goes to **Bert Hadley** for being the first, and also so far the only one to discover that the date given in the January issue of The Review for our 50th Reunion is incorrect. The correct dates are June 12-15, 1964. As the date in June is a little later than usual I left it blank and went to M.I.T. to verify it. Somewhere along the line we were promoted one year. Carbons go to each of our three officers, and I expect we all had a reason for overlooking the error. I was a bit worried medically, recently, and made a visit to the Mayo Clinic with my daughter and her husband, a doctor at the clinic. My problem turned out to be quite minor in comparison with **Herman Affel's** and **Charlie Fiske's**; perhaps the three of us did have excuses for missing the error but not full reasons. Anyway, we are now in excellent hands with **Ray Dinsmore** serving as chairman of our 50th Reunion. As many of my classmates have written from time to time, after retiring, "Oh, to have my secretary back to catch all errors for me."

Bill Simpson has moved around in San Diego, but seems still to be very active. He is now located at 3890 Boone Street. How about coming back East next year for our 50th? . . . How many of you remember our entrance examinations when **Louis Charm** was being paged all through the last part of them. Not until later did we learn that he had been hit and had broken a collar bone. He is still very active here in Boston, especially for his son, who is now a professor at M.I.T.

A pleasant note has been received

from Major General **Alden Waitt,** (Ret.) telling of his activities in San Antonio, especially how hot it has been there. He is hoping to be able to visit Europe this coming summer. Alden is continuing with his art work and, better yet, continuing to receive awards. . . . In the art field, how many classmates remember Frank Gracey of free drawing? I do, for I could not sketch that tipped-over and slanted steam engine bell. I do not think I could ever have gotten by if **Ralph Perry** had not shown me what one looked like. I did know enough, however, to direct pebbles from the window of Gracey's room on the fifth floor of Old Rogers to the nice people on the sidewalk below. . . . One of our less fortunate classmates is **Lucian Burnham,** who lives in Pasadena, Calif., with his wife Maida. Colonel Burnham, for many years a very vigorous man, has been injured by a coronary attack and, as he says, like Moses everything for him is now on a "thou-shalt-not" basis. After his serious attack last summer, he is coming along well. Last summer Maida broke an arm and recently she required another arm operation. Any classmate who has visited them in Pasadena must understand what it means to both of them. They had a wonderful flower garden which they delighted in caring for themselves.

Homer A. Johnson, who lived in recent years in Marblehead, Mass., died on December 31. Although he started with us at M.I.T., he transferred to Harvard where he was graduated in 1915. His wife, Adelaide Stickney, died a short time before him. A son and two daughters survived them. By coincidence, I met Mr. and Mrs. Johnson at "Maxim's" in Paris a very few years ago.—**H. B. Richmond,** Secretary, 100 Memorial Drive, Cambridge 42, Mass.; **Charles P. Fiske,** President, Cashmere Paynes Bay, St. James, Barbados, B.W.I.; **Herman A. Affel,** Assistant Secretary and Class Agent, R.F.D. 2, Oakland, Maine.

'15

This is a hard column to write. Our class has suffered two sad and shocking losses in the passing of **C. Weare (Wink) Howlett,** who died November 12, 1962, at South Yarmouth, Mass., and **Al Sampson's** wife, Anne, who passed away December 25, 1962, in Beverly, Mass. You will remember Weare in the best of spirits at our 45th Reunion—the life of the party. In fact, Weare and Max had set up those recent, enjoyable and successful reunions down on Cape Cod. Stricken suddenly at home late in the afternoon, Weare was rushed to the Cape Cod Hospital in Hyannis where he passed away early the next morning. Anything we say here will fall far short of properly or possibly expressing our warm friendly regards for Weare and our deep sympathetic feelings for his family. But we can all remember Weare as a true, loyal, devoted friend and classmate with a likable personality and a rich sense of humor. He took great pride and interest in his class and M.I.T. activities and had served diligently on many committees and the S.C.F. It was a privilege for the large delegation from our class, with their families, to attend Weare's services at the Newton Cemetery Chapel, Newton, Mass. Born in Cambridge, Mass., Weare was graduated from Rindge Technical School and took Course X with us. A member of Beta Theta Pi, he was active in undergraduate activities: a member of the Chemical Society; Mandolin Club; Technique Electoral Board; Junior Prom and Institute Committees and the class baseball and football teams. He was sales manager and a director of Hodgman Rubber Company, Framingham, and a director of Hampshire Manufacturing Co., Nashua, N. H. A few years ago he bought the house **Gene** and Ruth **Place** had at South Yarmouth and had begun to taper off in his work until his full retirement last year. Weare is survived by his widow Kathryn: two married daughters on the West Coast and six grandchildren. He was outstandingly popular in our class and had a host of staunch friends. We will all miss him but will never forget him.

Anne Sampson was a very loyal friend of 1915. With Al, she had worked to set up our Annual Class Cocktail Party at the M.I.T. Faculty Club on Alumni Day and had attended the Alumni Day Dinner. As a genial, generous and charming hostess she had entertained several of us from the class many times at their lovely house and garden in Beverly. A number of us from our class attended Anne's services and the flowers we sent are but a small expression of our fond and friendly regard for her and our deep sympathy for Al. Anne had long been active in civic and charitable groups and was a member of Ebenezer Francis Chapter D.A.R.; the Female Charitable Society; the Rotary Anns; the Dane Street Congregational Church and an honorary trustee of the Old Ladies Home. We will surely miss Anne's pleasant and enjoyable company at our future class parties.—**Azel W. Mack,** Secretary, 100 Memorial Drive, Cambridge 42, Mass.

'16

Our worthy President **Ralph Fletcher,** with all his enthusiasm about what he calls "the best class that ever—" is now reminding us, each and every one, that it won't be long now until the next reunion, the 47th, on the Cape. "Mark your calendar," he says; "mark your diary," he says, "or mark anything you want to, but don't forget the dates are June 7, 8, and 9." Moreover, he avers (if that's the word), no '16er can afford to miss a single one of these truly delightful occasions. In this connection, note that the **Hal Neilsons** in Lexington, Miss., not only send greetings to the class for the New Year but say "Here's to our next '16 Reunion!" Hal keeps in good health—as we saw him at the 45th. . . . **Ed Hanford,** as a kindred spirit to **Irv McDaniel, Howard Claussen,** and your secretary in making his own Christmas cards, made a beautiful card this year with his customary silk screen process. Consideration is being given to a system of interchange among '16ers who make their own Christmas cards; just let your secretary know if you should be on the list. The 1962 cards on hand will be displayed on the bulletin board at the reunion in June; if you have a card that should be included, please let us have a copy . . . In December, a postcard from **Don Webster** carried the caption: Beautiful Wild Roses Cover Cottage on Cape Cod," and Don noted: "We have a cottage like this but without roses—vine-covered."

Blythe Stason, retired Dean of the Law School of the University of Michigan, is still serving as administrator of the American Bar Foundation, which is the legal research affiliate of the American legal profession. He says: "The task is stimulating, for after a slow start the American Bar is at last assuming its responsibility for improvement of the law and administration of justice. This is necessary. You engineers and scientists are changing the face of the earth (as well as outer space) so rapidly that we lawyers must work diligently to keep up with you and to make the legal framework within which we live equal to the task of giving order to a technological society." To this end, the American Bar Foundation carries on a sizable research program. In guiding the program, Blythe finds it necessary to travel constantly not only in the U.S. but abroad (Japan twice and Italy once in 1962). Together with two colleagues, he published a 1500-page volume two years ago entitled "Atoms and the Law." He notes: "Some day I'll publish a piece on 'Modern Technology and the Law' just to show you how engineers are creating new challenges for the social scientists. Happy New Year to you and all other 1916ers." . . . **Aime Cousineau** writes from Montreal, sends Christmas and New Year's greetings, and notes that last fall he visited the Canadian provinces, where he spent a year 50 years ago (he is now 77) "a most interesting trip." Says his three trips to Europe were made in 1955, 1959, 1962, and he hopes to go back in 1963. He formerly headed the planning commission for the City of Montreal.

Last month, we mentioned that we had a little story from **Flipp Fleming** that we were saving for this issue. No sooner had our material gone to the Class News Editor at Tech, than we had word from Mrs. Fleming that on Saturday December 1, two days after Flipp sent his letter to us "came the shock of finding that he had passed away in his sleep early that morning." He had written, among other things: "I have been quite busy this past year as president of Stan Hywet Hall Foundation, Inc. It has a very small paid staff and everyone else is a volunteer—approximately 250 men and women donate time to keep it open." Stan Hywet, an English Tudor mansion of 65 rooms, with its 38 acres of rolling lawns, gardens and lagoons, was given in 1956 by the Seiberling heirs to the Stan Hywet Foundation, which administers the estate as a cultural and educational center for the city of Akron. An Akron paper notes: " 'He gave unstintingly of his time to Stan Hywet and he

was devoted to it,' said Robert S. Pflueger, Foundation chairman. 'He thought Akron needed it.' Mr. Fleming became active in Stan Hywet activities after his retirement in 1956 from Goodyear where he had been manager of general merchandise and material control since 1939." Flipp worked summers at Goodyear while in school, and when he finished Tech "he moved up successively to posts of production engineer, general foreman, and Plant 2 tire division superintendent, Plant 1 tire division superintendent, and then in charge of all Plant 2 production. From 1932 to 1939 he was in California in charge of Goodyear's plant there. Irv McDaniel says Flipp was slated to go all the way, but his heart attack in 1942 precluded the higher things in store for him. Irv says what we all would like to say: "To me, Flipp was one of the finest men I have ever known. Honest, sincere, utmost integrity, financial ability, and common horse sense. Why can't we elect someone like him as the President of the U.S.A.? We have lost a wonderful classmate and friend. And on New Year's Eve, Kay and I will pause to drink to the memory of Flipp—and Steve—and Chuck Loomis—Bill Farthing—and the many others."

George Maverick, in his sixth year on his 250 acres of woodlands they call Shepherds Hill in Charlottesville, Va., is still a professor at the Graduate School of Business, University of Virginia, but he says, "only barely so! I will be really sad when I have to retire from this pleasant association. As the teaching gets less I work harder in my woods and in the shop on the farm. Wood carving that I took up several years ago at San Miguel D'Allende is my present form of psychotherapy. My wife is the super gardener in our family and is heavily involved in historical society affairs. Our three children and nine grandchildren visit here often." George says that after three auto trips to Texas and Mexico they seem to plan European trips that just don't work out "because we can't find good baby sitters for the farm. Maybe we are just too comfortable here!" He urges any 1916er who may be passing near Charlottesville, to look him up in the telephone directory and then stop by—a welcome is sure!

We wish we had space to give most of a significant article in the December 2 issue of the Boston Globe, an interview with **Vannevar Bush** entitled: "Men Who Lived With the Bomb—The look back 20 years after—without fear for the future." The article introduce's Van's "thoughtful smile" and his "warm craggy face," and says: "This was the man who directed the nation's scientific effort through the trying days of World War II; the man who more than most helped make possible the development of The Bomb and the wider horizons of atomic energy." On the early days of the atomic bomb: "Asked about the famous letter that Albert Einstein sent to President Roosevelt on behalf of physicist Leo Szilard which was claimed to have alerted FDR to the fact that a bomb could be built, a story mentioned in numerous biographies and reports, Bush replied: 'The president never mentioned the letter to me; nor I to him. The show was going before that letter was even written.' " The article notes: "Twenty years have passed. At 72, 'Van' Bush is still vigorously alert, mentally and physically. He goes each morning to a sparse office at M.I.T. He is not ashamed of The Bomb as are some today. 'This was the greatest engineering feat of all time,' he says in the short satisfying phrases with which he summarizes great events." Further: "Van Bush's thoughts on the bomb in retrospect are very different from those of most people, perhaps because he has not the inherent fear of it as others do. 'Today,' he says, 'we have a greater chance than ever before of getting rid of major wars and it's because of the bomb.' . . . Says Bush: 'Wars are caused by two things: (1) the urge to conquer, and (2) pressures of population.' He believes the first is all but overcome; the second needs urgent solution. "I like the outlook today better than 2,000 years ago.' On space, which he thinks is greatly overemphasized, he has a novel twist rarely aired. It is generally felt, even by most scientists today, that we have to race the Russians to the moon for propaganda purposes if nothing else. But, says Bush: 'There are only two groups of people in the uncommitted or developing nations of the world—those who cannot read and those who rule. For those who can't read it doesn't matter much what happens in space and for those who rule, their only interest is to be on the side of the winner. The action we took on Cuba will have much greater propaganda effect than anything we do in space, and I doubt there will be the scientific benefits in going to the moon that many would have us think.' " We hope all of you in and around Boston read the whole article.

Looking in our old 1917 Technique, page 374, published in 1916, we recently found something that should be of terrific interest to young in-Tech electrical engineers today. The advice we give is: if you want to live a long time, become an officer in the Electrical Engineering Society at the Institute. Why this advice? Because: the officers of the Electrical Engineering Society at that time, as listed on page 374, are all active reunion-going men today: President **Willard Brown;** Vice-president **Eugene Barney;** Secretary **Blythe Stason;** Treasurer **Joe Barker.** How about that? And you might even become the dean of the law school of a big university—like Blythe did!. . . . **Bill Barrett** retired January 1, as vice-president of the Metropolitan Life Insurance Company in New York. At the time of his retirement, according to the December 15 issue of Eastern Underwriter, he had "executive responsibility for the internal consulting management services of the company which includes, among other activities, the application of electronic data processing equipment to operations. In addition, his area of responsibility extends over the company's huge records division, purchase and supply, publishing operations, the mail division, and other company service units." Prior to this assignment, he was secretary of the company, and formerly was in charge of the policy holders service bureau of the company. He had gained wide recognition as an authority in management fields, especially "in matters relating to the industrial relations aspects of employer-employee group insurance coverage." Further: "At the request of the Federal Government his services have been loaned by the Metropolitan at various times to the Government. He was associated with the late Edward R. Stettinius in the Industrial Advisory Board of the N.R.A.; in 1938 he assisted in organizing the War Resources Board, and in 1940 he served in the Raw Materials Division of the Advisory Commission to the Council for National Defense. Among his outside activities, Mr. Barrett is a trustee of the American Heritage Foundation, American Craftsmen's Council, and Old Sturbridge Village, Sturbridge, Mass.; he is a member of the personnel committee of the National Council of the Boy Scouts of America, the personnel committee of the Commerce and Industry Association, and Life Insurance Association of America." Now we expect to see more of him at the monthly class luncheons in New York. These are held at noon on the Thursday following the first Monday of each month, in the club rooms of the M.I.T. Club of New York, Biltmore Hotel, 43rd and Madison Avenue. Come one, come all!

On a Christmas card photograph of **Al** and Mrs. **Pettee** at Delphi, Mt. Parnassus, in Greece, Al writes: "The question is: Which is the oracle?" From Tryon, N. C., Al says "retirement is o.k. so far, as I catch up on my homework. Have just finished a large coffee table started before I left for Venezuela in '59. Fortunately the termites hadn't gotten the lumber." Then he adds something many of us thoroughly understand 47 years after graduation: "Just had to turn down a job of tutoring calculus. What are they?" . . . **Joe Barker** continues to serve as a part-time consultant to the Data Processing Group of BEMA, but in December also accepted appointment as a consultant to NASA (National Aeronautics and Space Administration). He expects to give NASA about halftime; he will be working with a group headed by Earl Stevenson, '19, who has retired as chairman of the board of Arthur D. Little. This will mean quite a lot of travel to NASA's several installations. All this is no doubt right in line with what Joe considers retirement, but of course we know why they always want Joe! He tells of loaning his 1917 Technique to one of **Bill Barrett's** associates who wanted a copy of Bill's picture in 1916 as well as the baby picture then published.

Emory Kemp tells of catching his first snake in Florida, and from what he says it was a dilly! Here, let him tell it: "Last night (December 30) coming home from the movies in Bradenton, after driving into our car-park I opened the door to my den and Ruth's sister Dot who is visiting us looked down at the door mat and said, 'Is that a snake?' Lying perfectly straight between the cocoa rug and the door sill was surely a snake—a coral snake about 21 inches long! Both Ruth and Dot went in stepping over him and I

closed the door, got my shovel, and pinned him to the concrete floor until he passed out. I hope to get a color picture of him—very pretty with all the bands of color—red, yellow, black, yellow, red, yellow, etc." (Correction: **Not** a coral snake! A subsequent letter says that this particular snake, although striped like a coral, is harmless and what they call a garden snake.) Emory tells of returning to Sarasota from Wellfleet in October to hear that they had 23 inches of rain in September, 17 inches of it in 24 hours. Although many houses were flooded in Sarasota, theirs was high and dry, for which they were duly thankful. And since trouble always seems to come in bunches, they lost their gold tree and one or two others in the deep-freeze of December 13-14, when the whole South suffered so badly. Emory still uses his engineering training, however, as you will note from this account: "I could not buy any alcohol for my car in the area, so a bright idea hit me. I poured a pint of vodka and a pint of gin into the radiator and installed a trouble lamp at the bottom of the radiator. My car never froze!" He says that all the grandchildren and especially his daughter Virginia are progressing nicely from the horrible accident on Cape Cod, mentioned in the January column. Their third oldest grandchild Stephanie, will be graduated from Orleans High this coming June; She's a National Honor Society student. We hope to see Emory and Ruth at the 47th reunion in June.

A pleasant note from **Coke Flannagan** in Inverness, Fla., says that for the last 10 years in retirement he has been puttering, "and if I do say so myself I am an excellent putterer. But, as you know, a change of pace is refreshing so when I feel well caught up on puttering I do a little finagling as chairman of our local hospital board, treasurer of the Red Cross, and as a lowly member of the local Chamber of Commerce." Coke notes these activities take quite a bit of time. . . . Speaking of Florida, **Frank Ross** now has a pretty regular schedule for his winters. From October 15 to May 1 he can be reached at Canterbury Court, Naples, Fla.; for the rest of the year he is still in West Hartford. . . . **Bill Leach** reported in December that after his several setbacks this past year, he was feeling very much better and more like his old self. Back in October he visited Tech and had lunch at the Faculty Club with Frederick Watriss, '41, Assistant Treasurer of M.I.T. He noted that friends in Washington who see Pearl Wilson report good improvement.

Francis Stern explains why he was not at the December 6 luncheon in New York: "On December 4 and 5 I was at Pocono Manor trying to make order out of chaos in a situation which had developed in Junior Achievement. The night of the fourth our rump session finally broke up at 2:30 with result that on the 5th, when it was raining cats and dogs, the two of us, Arthur Rogers of Springfield and myself, wended our weary way home instead of staying overnight in New York as we thought we might. Please tell Uncle **Jim (Evans)** that I will try to be a better boy come spring." Until the latter part of March, the Sterns can be reached at 225 West Vista Chino, Palm Springs, Calif. "The latch has no key, the pool has plenty of water, the ice box is well stocked and least but not to be completely despised is the fact that we bought a new bar for our apartment this year which, of course, could not remain unstocked." . . . The **Joel Connollys** have been touring all over the U.S. since their return from Taiwan, but have now settled down at least until June 1 in Albuquerque, N. M. (2303 Candelaria Road, N.W.). We hope to see them on one of our future trips out there. . . . **Steve Berke** indicated in December that he and Louise expected to return to Phoenix around the 15th of January for a month or so. Louise's short trip out there in November did her a lot of good . . . **Maynard Guss** writes: "Merry Christmas to our hard-working secretary. The '16 notes in the December Technology Review were long and excellent and you need nothing from me. I retired in 1948 (after 32 years with Standard Oil, mostly in China) to Santa Barbara, where I have built two homes, and have been church treasurer for over 10 years, and belong to a Retired Men's Club—where I met **Bob Wilson.**"

We had word from our only (so far) reunion-attending coed, **Elsa Habicht Mueser** of Mountain Lakes, N. J., just before she and her husband Ed (Columbia, '15), took off for the Pacific. She notes that many times she has been asked: "What did you value most from M.I.T.?" Her reply: "1) Learn to think and live with fellow man; 2) Learn to learn many things in many fields; 3) Turn my knowledge into ability to earn a living; 4) I could forget all I learnt because I had a diploma that said graduate." Familywise, she notes they have had "a long and happy life"—one son and two daughters, Harvard and Radcliffe, and 11 grandchildren from Maine to California. Then: "We have swum, sailed, skied, skated and walked to our hearts' content and now travel to all the other continents; we are just packing our bags for Tahiti, Samoa, Pago Pago, Fiji, and weeks of roaming through New Zealand and Australia. If you wish to be warm and comfortable, stay home in a warm climate and miss the fun and struggle—the interests of different men, different religions, different foods, heat, dirt, and waiting for transportation. Other countries have many aspects we could use in our dear United States." . . . As the column comes to a close, remember what Ralph says—set aside these dates for the 47th Reunion, June 7, 8, and 9; be sure to come. Write a little but write often to help keep the little old '16 column interesting and current—**Harold F. Dodge,** 96 Briarcliff Road, Mountain Lakes, N. J.

'17

You have been advised of **Lobby's** untimely death in a class letter from **Al Lunn,** and have read the obituary in The Technology Review for February. The class notes for February were printed by the time that news became available. So, we are including in this issue some of the details which have been supplied by **Dick Lyons,** who visited Lobby during his illness and attended the funeral services in Houston and Monterrey. Dick's account is as follows: "Lobby and Conchita had come here from Cuernavaca, Mexico, on October 9, on the recommendation of their friend, Augustin M. Valdez, '25. After Lobby's arrival, there was hope that the further development of pulmonary fibrosis could be arrested. It was not considered to be curable. However, the prior damage proved to be too severe. During the 12 weeks at the hospital, Conchita was ever at Lobby's side ministering to his needs and supporting his spirit with expressions of hope and faith that his condition would improve. There were days when his outlook did improve and then Lobby's smiling response to Conchita's cheerfulness was rewarding. On one of my visits to him, Lobby referred to Conchita as a 'wonderful woman' which she truly is.

"In the November, 1962, issue of The Review, our class news included Lobby's interesting letter of August 14, written in El Paso, Texas. He described the trip which had begun on July 11 in Cambridge, and which had taken him and Conchita across the country visiting friends and interesting places. He wrote that they were to cross the border the next day and head south for Chihuahua. Later, after arriving in Mexico City, Lobby spent several days in a hospital and then Conchita drove him to Cuernavaca. As the need for further hospitalization and treatment became apparent, Lobby and Conchita returned to Mexico City and flew on to Houston where Lobby immediately entered Methodist Hospital. During the weeks which followed, their Houston friends were allowed to visit Lobby on a somewhat limited basis because long conversations were tiring to him. The kind attentions of these friends caused Conchita later, in Monterrey, to refer to them as her Houston M.I.T. family. A partial list includes Mrs. Robert W. (Mary) Bier, a long standing friend of Conchita, Sid Atlas, '43, Tom Jenkins, '32, Joe Mares, '24, Duke Selig, '33, Ernst Voss '19, and from Cambridge, Don Severance, '38.

"The funeral service in Houston was held at the Settegast-Kopf chapel at 4:30, Wednesday, January 2. Through the kindness of Ken Jamieson, '31, airplane transportation was provided to Monterrey, Mexico, where Lobby was to be buried in the family lot of Conchita. Accompanying Conchita on the trip to Monterrey was Mrs. Robert W. (Mary) Bier, Thomas H. Jenkins, '32, Thomas W. Moore, '26, Mimi and Duke Selig, '33, my wife Sammie and me. Upon arriving at the Monterrey airport, we were met by Conchita's family and friends as well as a group of Monterrey alumni. As we landed, a plane also arrived from Mexico City bringing Sr. and Sra. Fernando Gonzales, close friends of Conchita and Lobby. Graveside services were held at Vanteon del Carmen Cemetery.

Among those in attendance was our classmate, Francisco G. Sada, Jr. Before departing for the return trip, the Houston group was graciously invited to the home of Sr. Diego G. Sada, brother of Francisco, to visit with Conchita's family and friends at luncheon. It was Conchita's intention to remain about 10 days with Sr. and Sra. Sada.

"The following sentence, quoted from the July, 1962, Review, aptly describes Lobby's great contribution to M.I.T., its students and Alumni: 'Others have taught the humanities at M.I.T., but no one else had practiced the arts of life in its environment, polarized around engineering and science, any more sagely or more productively than Lobby.' "

A note from **Dick Whitney** says: "Mrs. Whitney and I left Norfolk, Va., October 15 aboard a German freighter to Hamburg—14 days—and then spent approximately 10 days in Denmark and 10 days in Holland. It was not the best time of the year for either country but we thoroughly enjoyed it. We liked Denmark especially. We drove around each country in rented Volkswagens. When we flew home via KLM from Amsterdam—eight hours to Idlewild, delightful flight—and boarded our Tempest station wagon, we thought we had a Rolls Royce." . . . News from **Jimmy Doon,** who resides in Henniker, N. H., has been scarce since we published our 30th anniversary book. At that time he was secretary of the N. H. Public Service Commission. The American Legion Magazine of December last showed a picture of the newly elected vice-commanders of the Legion. Among them was James A. Doon registering a victory smile. Who knows, the Class of 1917 may have a national commander on its rolls in the not too distant future.

Notices have been received of the death of two members of the class. **Francis E. Thomas** of Carlisle, Pa., died November 10. He was born in 1893 and was graduated from the course in civil engineering. His army service was in the Field Artillery. In recent years he was engaged in writing the history of Carlisle, Pa. . . . **John S. Ellithorp, Jr.,** formerly of Canajoharie, N. Y., and more recently of Palatine Bridge, N. Y., died on November 27. He attended Course V.

As space permits, we will quote from the replies to question No. 3 of the class questionnaire: "If you are officially retired, what activities occupy your attention?" Quotes are taken in alphabetic order. **C. A. Abels:** church; Telephone Pioneers; Minute Man Crafts, Inc. **C. E. Ames** (Perhaps someone can translate the following.) "Otiosity—Otium cum dignitate." **Clarence Auty:** garden and greenhouse care; consulting engineering; camera; travel; grandchildren. **Stan Barrows:** "I probably play 200 rounds of golf in the course of a year. No talent, however." **Walter Beadle:** M.I.T. Corporation and Second Century Program; University of Delaware Board of Trustees; National Industrial Conference Board Trustee; DuPont Company Board; Sailing; skiing; travel. **Ken Bell:** consulting work abroad for AID; rose culture; photography; cabinet making and carpenter work; piano and organ playing; travel; collecting first editions; President, Historical Society; Senior Deacon; Chairman, Executive Committee, Research Foundation, Lowell Tech. **T. G. Best:** Preparing tax maps for village of Boonville, N. Y.; Church; reforestation; Local Chamber of Commerce; golf; riding; fishing; travel. **R. M. Blackall:** Orchard; ceramics. **Ray Blanchard:** Golf, President, Melrose Hospital and other civic activities. **Ray Brooks:** A bit of everything, but trying not to be tied down to schedules of any kind. **Penn Brooks:** Dean Emeritus, M.I.T. School Industrial Management; Trustee, M.I.T. Pension fund; American Optical Company, Sears Roebuck Profit Sharing Fund; Director of five or more companies, part time lecturer, farmer. **W. D. Canan:** Professional; church; charitable. **R. H. Catlett:** Board member, Children's Home Society of Va.; Board, Friends of Library; Consultant, Catlett-Johnson Corporation; fishing; bridge (family style); poker. **C. C. Coakley:** fishing; photography; travel, woodworking. **W. B. Colleary:** Past President, Centerville Civic Association; Centerville Historical Society; On the beach from 1:00 to 4:00 P.M. in summer; fishing; hunting; upkeep of property. Not enough hours in a day. **F. N. Crane:** travel, genealogical research; gardening. **Bill Dennen:** "Run my farm with sheep and beef cattle; mining profession contacts; M.I.T. Club and Honorary Secretary M.I.T.; Rotary Club; Masonic bodies; Advisory Committee Second Army; Mexican vacation during the winter months." **Brick Dunham:** grandchildren; church; painting; sketching. **Harold F. Eastman:** Member A.F. and A.M.; N.A.P.E.; Registered Professional Engineer, Mass.; Vice-president Stow, Mass., Historical Society; Treasurer, National Society for the Preservation of Covered Bridges, Inc.; Treasurer, H. F. Eastman Company, Inc. **William Eaton:** Trustee, Braille Institute of America; Trustee, Hollywood Congregational Church, Los Angeles; travel. **R. D. Fay:** poor health limits activities to simple handiwork. **Irving Fineman:** Local progressive moments; Mental Health Association; Council for Peace; Democratic Party. **Heine Gartner:** Restore antique furniture and make pine reproductions. **N. W. Gokey:** President, Bay Colony Community League, Va.; Vice-President, Retired Officer's Association. **F. Goodale:** Farming; travel. **Leslie R. Groves:** "Too many activities that demand time, travel, and contributions and too few that want little time but are reasonable in their payments to me." **George Henderson:** Treasurer, Lyon Village Community House, Arlington, Va.; gardening; golf; travel. **Lucius Hill:** "Well now, here are some but not all; In the summertime, sitting on the porch in a rocking chair watching the boats go by; keeping the Class of 1917 out of financial difficulties with some little success to date; seems I'm a glutton for punishment for I'm still treasurer of the Brookline Housing Authority." **Phil E. Hulburd:** School Advisory Committee; reading; gardening; and sleeping. **George P. Igleheart:** Farming; civic service; woodworking, fishing. **J. R. Kelly:** Member, Charter Commission, Richland, Wash.; Councilman and Mayor, Richland; consultant; referee in bankruptcy; scout executive. **Allen Kingman:** church; gardening, bridge, travel (mostly to visit children). **Ken Lane:** Hunting; golf; working around the two places of residence. **Dick Loengard:** Director of a few companies; President, Jacob A. Riis Neighborhood Settlement, N. Y.; member miscellaneous committees. **R. T. Lyons:** County Vice-president, American Cancer Society; Trustee, University of St. Thomas; Advisory Committee, St. Joseph's Hospital; Director, Catholic Charities. (Continued in next month's notes)—**W. I. McNeill,** Secretary, 107 Wood Pond Road, West Hartford, 7, Conn.; **C. D. Proctor,** Assistant Secretary, P.O. Box 336, Lincoln Park, N. J.

'18

Winter is a time for old men to sit by the fireside, full of laughter and earthy wisdom. In the darkness of the pre-dawn hours on the last day of the year, we had sudden need not only for the fireplace but also for the ancient radiation from a wood stove. The thermometer was 24 degrees below zero, the wind blew 40 to 50 miles an hour, and the electric power went off. It didn't matter. We had a lantern, two kerosene lamps, plenty of wood, and an Eskimo parka from Alaska in which to reach the wood pile. At about the same time we were also full of laughter because of Christmas cards from some of the brethren. **Johnny Clark** (physics), who is professor of mechanical engineering at Mississippi State University, wrote, "How I yearned for New Hampshire last summer. The heat here was more distressing than a thermodynamics exam." . . . **Sax Fletcher** (mechanical engineering) sent us a card showing four tiny grandchildren trudging down a country road with an unusually lovely big hill in the background. The printed message was, "A mountain seems so big, a child so small. But there is nothing in the world that conveys the Christmas spirit more vividly than children on a farm. Their joy, added to the peace and beauty of God's great earth, make up our wish for you this Christmas season." Sax adds a written message, "You may recognize Pack Monadnock. This has been a busy summer, but we hope to see you soon. Glad you are enjoying your new work. **John Kilduff, Pete Sanger,** and I had a meeting in Boston recently to discuss our 45th Reunion. Everything looks good." . . . **Fred Philbrick** (electrical engineering) says things calmed down a lot in Florida after the recent exchange of courtesies between the U.S. and Russia on the subject of tempestuous things in Cuba. . . . There was also a gracious Christmas letter from the widow of **Albert Haertlein** (civil engineering): "This is a message of gratitude and thanks to the many who have made possible the Albert Haertlein Memorial Scholarship Fund at Harvard. As Albert's life was devoted to furthering his professions of teaching and engineering, and as he received much joy from the success of those

he had taught (he always felt fortunate in having the best students in his courses), it seems a miracle that this fund came into being, and that through this fund students will continue to be helped to become trained leaders. Two young men interested in engineering have received scholarships this fall. Life and time go on, there are many places where help is needed, and a lonely person can keep busy with volunteer work. Friends are precious, and there are many whose children have grown and settled far away. I had a pleasant summer, a few days in the Berkshires, visits to Maine and Newport, then down to New Jersey with John's family, where I expect to return for Christmas. Jim is with the IBM in Dallas, where I hope to visit this spring. Christmas cards and messages mean more each year—I had hoped to reply to them during the year, but here it is Christmas again, and more beautiful cards are coming from friends whose lives have enriched our lives, to remind one of happy times. How good to have Christmas!"

A photograph by **Sam Chamberlain** (architecture) of the Jaffrey Center Meeting House was splashed all the way across the front page of our local newspaper's first 1963 edition. The frame for the Meeting House was raised on June 17, 1775, and it has since enjoyed a rich inner life concerned mostly with earthy wisdom and things of the spirit. It was also in color on the cover of the January issue of "Boy's Life" with a jolly troop of young people trimming a Christmas tree. For those of you who are complacent toward the sins of photography, be it known that this particular tree was never present beside our Meeting House which, incidentally at this writing, is the only colonial structure listed among the state's 60 most picturesque sites chosen in preparation for the New Hampshire photoscenic year of 1963. . . . The master of an estate called "Shanjilu" in Tryon, N.C., familiarly known to us as **John Poteat** (civil engineering) would endear himself to any class secretary. Says John: "Your last effusion was one to stimulate the lachrymal glands. There you sit, snowed in and forsaken by classmates with only birds for your friends, and they come only because you feed them! So I am enclosing a pot boiler for you. When I first prepared it there was about four times the material but I had to cut it down. It still doesn't tell of our 11,500 miles of driving through the west when we visited 13 U.S. national parks and 3 Canadian national parks. What scenery we saw and how beautiful this country of ours is! We are congratulating ourselves that we left Massachusetts the day after Christmas instead of waiting until New Year's. The driving was easy and I fear it would not have been had we waited. [Right. We were snowbound for three days.] When you dig out and can get to the post office, let me know about reunion, if you have the dope. I presume we will have a 45th in June. Can you tell me anything about when and where it is going to be? My wife and I decided we would not take any trips outside the country this year but confine our trips to reunions. I have my 50th at Furman University and she has her 43rd at Connecticut College. So we'll drive East for reunions if we can schedule them without conflict. . . . Professor **Charles H. Porter** has been spending his winters here in Tryon for a number of years. This year when he arrived he was quite feeble and the grim reaper finally caught him at 10:30 P.M. December 30. A service this afternoon at the Episcopal Church will commemorate his life." The accompanying account of the Poteats' 1962 travels is full of the implications of laughter and the acquisition of earthy wisdom in the pleasantest of ways. It is a bit long for one installment, so it will be continued next month:

"Another year and another account of a journey to regale you with! And it was filled with beautiful scenery, many new experiences and thrills from early history. In early May, with Dorothy and Ewing Brown, we drove west to visit 13 American and 3 Canadian National Parks, as well as to cruise up the Inside Passage from Vancouver, B.C., to Skagway, Alaska, and return. Our total mileage was 13,500 of which 11,500 was by car and 2,000 by ship. Except for a couple of days on the cruise, and at the Fair in Seattle when it rained, we were blessed with excellent weather. It would be too lengthy a report to cover all we saw and did so we'll just tell about the cruise. Except for Prince Rupert, B.C. which was our first port of call going north and our last, returning, this entire coast line has no transportation with the interior except by airplane. As we sailed north we passed log tows, fishing craft, freight tows used to provision the otherwise inaccessible areas of the section and miscellaneous boats. We passed through Seymour Narrows, never out of sight of land. There was a constantly changing skyline of snow-capped mountains and here and there a glacier dropping icebergs into the sea. We passed several icebergs and observed the natural color "ice blue" which results when the tremendous pressure on the lower ice strata of a glacier forces out all the entrapped air. This Inside Passage is said to be quite like the fjords of Norway. We were prepared for colder weather than we experienced. They told us at Prince Rupert that they never have zero weather. The Japan Current moderates the temperatures in winter. Now for some brief descriptions of places we landed and what we saw. Prince Rupert is the western terminus of the Canadian National Railway, and so it is natural that processing of sea food for shipment to Canada and the United States should be the prime industry. We saw halibut being hoisted directly from fishing boats to the filleting, packaging and freezing floor of one plant where the packages bore name brands sold by Safeway and A & P stores. We also visited the excellent museum there which has rare Indian treasures and a fine collection of Argyllite carvings. Argyllite is a form of slate found only on Queen Charlotte Island nearby, and only the Haida Indians are allowed access to it. A few good carvers are left among them. Ketchikan—our first Alaska stop—is perched on the side of the mountains with stairs connecting parallel streets. It was 7 P.M. but there was still plenty of daylight for a bus trip around this city of 9,000. We saw their high school for 1,000 students, a large pulp mill which provides most of the employment, a coast guard station, and a totem pole park where small Indian children dressed in Indian regalia offered wild flowers for such coins as they could get. It had been a beautiful day and at 9 P.M. when we sailed the sun was still high and the snowcapped mountains above the town were a sight to see. About noon June 12, Juneau came into view. Gold was discovered here in 1880 by Joseph Juneau, and Mount Juneau rises above the city. A 21-foot tide provides docking complications for both ships and amphibious planes of Alaska Airlines which are based here. Buses took us to Mendenhall Glacier; the face of this tremendous river of ice stretches back several miles into the mountains. Here again we saw "ice blue". The cost of living is high in Alaska. A house that could be built for $17,500 here costs as much as $40,000 there. Common labor gets $4.40 an hour and a stevedore makes $11,000 a year. While the museum was fascinating, the highlight of this stop was the Red Dog Saloon to which most of the ship had repaired to hear Hattie, the 73-year-old piano player, entertain. With gloves on her hands as she played, a harness around her made of 73 silver dollars, and a vigorous enthusiasm, she had the whole place singing as she banged away at the tin-panny upright piano with red and yellow splotches of paint on the sounding board and electric lights flashing inside the piano as she played. It was still daylight when we sailed at about 11:30 for Skagway where we docked in the rain on June 13. What a fascinating and tragic story lies behind this remnant of the gold rush at the turn of the century, which then had 15,000 inhabitants but scarcely 800 now. A bit of paving here and there, plank sidewalks, and unpainted and unoccupied stores don't dampen the vigorous pride of the local people in the lusty past of Skagway while it ekes out its present, from tourists and its position as the terminus of the White Pass and Yukon Railway. This narrow gauge railway, built at the time of the gold rush at a cost of $2,000,000 and many lives, follows the old Klondike Trail to Whitehorse where it meets the Alcan Highway. Our train trip as far as Carcross took us up 3,000 feet which, at that latitude is equivalent to 10,000 feet in the U.S. It goes along precipitous gorge walls and into desolate rocky country, across a small strip of British Columbia and into Yukon Territory. Two or three ptarmigans in flight were the only signs of animal life we saw. Lunch at Lake Bennett station gave us moose meat as the pièce de resistance. It tastes like pot roast." . . . Two of the brethren have laughed for the last time and acquired the one last bit of earthy wisdom available to any man. On June 20 **Elwood M. Manter** (mechanical engineering) died suddenly from a fall at his home in Media, Pa. **Nathaniel A. Reinhertz** (architecture) died in July somewhere in San Francisco.—**F. Alexander Magoun,** Secretary, Jaffrey Center, N.H.

'19

Ernest F. Perkins has a new large ranch house at 145 Cochrane Street, Melrose 76, Mass. He retired two years ago, spends two months every winter at Hillsborough Beach, Pompano, Fla., and five months in Meredith, N.H. He is a director of the Melrose Co-op Bank, and when he is in Massachusetts attends meetings of the Security and Investment Committee of which he is a member, and spends one day a week at the bank on business. . . . **Carl G. Polson** also retired two years ago after 44 years with the Brockton Edison Company, the last 13 years as superintendent of transmission and distribution. He is now living on Cape Cod, and his address is Phinney's Lane, Centerville, Cape Cod, Mass. . . . **Oscar de Lima,** who has for some years been president of the Roger Smith Hotels Corporation, has recently been made chairman of the board.

Ed Moody sends in the following note: "My heart rebelled so I slowed down, one hour a day I go to town, the balance I stay home in Clover, my son has taken the business over. Each day my schedule is scanned for projects I had planned or started and put by till I had time to start again. At nights television or take out Ma and call a square dance now and then." . . . **Ralph A. Cartwright** has just retired. His new address is Ames House, Atlantic Avenue, North Hampton, N.H. . . . **Ralph C. Flewelling** has moved to 855 Holly Vista Drive, Pasadena, Calif.; **Richard S. Holmgren** to 10037 Fuerte Drive, La Mesa, Calif.; **Donald W. Kitchin,** to 16 Chesterford Road, Winchester, Mass.; **George F. Magraw,** 20 Alton Street, Walpole, Mass.; **Karl F. Rodgers,** c/o R. D. Morton, 3 Forest Avenue, Verona, N.J.—**Eugene R. Smoley,** Secretary, 30 School Lane, Scarsdale, N.J.

'20

Word from our illustrious president, **Norrie Abbott,** indicates impending retirement from his long-held position as senior vice-president and assistant treasurer of Manufacturers Mutual Fire Insurance Company, in Providence. In case you want to swap ideas with Norrie on how to retire gracefully, his home address is 169 Brown Street, Providence 6. He enclosed a copy of a most interesting letter from **Ed Burdell** who is now consultant to the Cranbrook Foundation, Bloomfield Hills, Mich. Ed reports that last June he completed a two and-a-half year tour of duty as Chief of Mission, UNESCO, to the Middle East Technical University, Ankara, Turkey. He had retired early in 1960 as president emeritus of Cooper Union to accept an invitation from the United Nations and the Turkish government to help establish a land-grant type of American technical university for 12,000 students on a 10,000-acre campus near the capitol city of Ankara. It was Ed's job to assist in the creating of four faculties and to build the enrollment up to the first thousand students, as well as to plan an entirely new campus due to be occupied by next June. Ed writes: "We had almost every experience that one could have on foreign service. Shortly after my wife and I established ourselves in Ankara early in 1960, we went through the strenuous revolution that May. We made out all right personally but the university, being organized along Western lines, violated almost all of the ancient academic traditions and customs of Turkey, hence was subjected to months of agonizing reappraisal by none-too-friendly officials. Of course, I, as a foreigner, was unseated as the chief executive officer but I remained in spite of everything as consultant president to no less than four successive Turkish university presidents. However, our principal objectives such as instruction wholly in the English language, use of American or Western European trained Turkish faculty, and a salary scale and code of administration independent of the Ministry of Education survived. When I departed last summer, an excellent man, who had reorganized the tangled finances of Turkey after the revolution, had been in the presidency for six months and tremendous progress had been made on building the new campus. I left with a feeling of deep satisfaction in having assisted in the creation of one of the most significant experiments in regional higher education in a developing country. Our life in Turkey had its rewards as well. My wife and I made a host of new friends. Our experience was not limited to Turkey because we had the good fortune to visit extensively on behalf of the University the neighboring Arab States and Israel. Our first two-and-a-half years 'in retirement' proved to be as exciting and active as any we have had."

Al Burke thoughtfully forwarded another interesting letter from a classmate, **Ted Kendrick** of 57 Kenvil Avenue, Succasunna, N.J. Ted writes: "Maybe I will make an effort to attend the 45th class reunion. . . . By that time I know I shall be retired. . . . I am staff advisor on safety to the Propellants and Explosives Manufacturing Branch of Picatinny Arsenal. One never likes to brag about one's record in safety as the next five seconds can bring disaster. One just has to keep trying and catch those hazards, big and little, before they cause trouble." We join Al in urging you to make good on the intended attendance at our 45th, Ted. You'll never regret it! . . . Two more classmates can be added to the long list of those now residing in Florida, at least for the winter months. **Ed Ryer** may be found basking in the sun at the Ocean Terrace Club, Naples, and **Heland Green** is in Fort Lauderdale. Think of us, boys, coping with icy highways and sub-zero gales. It will help you to enjoy yourselves even more. . . . **Ray Reese**'s present address is P.O. Box 556, Toledo, Ohio. **Bob Tobin** has moved from Stratford to Fairfield, Conn., 2170 Redding Road. **Dave Fiske** may be found at 15 Normandie Road, Dover, Mass. . . . Welcome and novel Christmas greeting was received from **K. B. White,** Chateau D'Arthies, Arthies (Seine-et-Oise), near Paris. . . . Just so the Florida contingent can do some more gloating I might mention that your doughty New England secretary and his Amy, accompanied by **Buck** and Mary **Clark,** celebrated the New Year weekend at Steele Hill, Laconia, where the 50-mile gale at 20 below zero, snapped the power lines leaving us without heat, light or water. Being hardy souls, we managed and remembered to toast you all to a Happy and Healthful New Year!—**Harold Bugbee,** Secretary, 21 Everell Road, Winchester, Mass.

'21

Dreary days of winter develop a shimmering sparkle about this time every year as we prepare notes for the March Review. Maxine and your secretary deeply appreciate your personal greetings for Christmas and the New Year. They give us a wonderful lift and turn our thoughts to many happy days with you in times past. They more than compensate for the swift passing of another year in the pleasurable promise they give for meeting each other again in the immediate future. Thanks—and please keep on writing! Most welcome notes are acknowledged from Jack and Elizabeth Barriger, Ednah Blanchard, Ethel Burckett, Rich and Mary Louise Clark, Phil and Edna Coffin, Bob and Bertha Cook, Herb DeStaebler, Sarita and Gonzalo Docal, '44, Chick and Maida Dubé, Janet and Gef Farmer, '22, Harry and Catharine Field, Munnie and Alex Hawes, Sumner and Betty Hayward, Dug and Betty Jackson, Jack and Marge Kendall, Chick and Laurie Kurth, Moose LeFevre, Leon and Emma Lloyd, Milicent and Joe Maxfield, '10, Bob and Helen Miller, Phil Nelles, George and Muriel Owens, Helier and Graciela Rodríguez, Ray and Helen St. Laurent, Rufe and Madeline Shaw, Helen and Lem Tremaine, '23, Louise and Carlton Tucker, '18, Dave and India Woodbury.

Fritz Ferdinand has a new home address, 60 Preston Terrace, Marshfield, Mass. . . . **Harry A. Goodman** is associated with the L. F. Bruno Agency, 801 Park Square Building, Boston 16, Mass. . . . **Bob Haskel** has left Natick after all these years and now makes his home at 51 Marked Tree Road, Needham 92, Mass. . . . Lieutenant Colonel **William D. Morrison** says he has moved to 6270 Hilltop Drive, Pensacola, Fla. . . . **Ed Noyes** has left Pennsylvania for a new residence at 1410 S.E. 7th Avenue, Pompano Beach, Fla., and we guess this means retirement. . . . Dr. **Russell B. Tewksbury** says his mail should be sent to 52 Stony Ridge Drive, Hillsdale, N.J. . . . **Charles W. Tucker** has left Washington, D.C., to become associated with the firm of Chambers, Wiswell and Moore, Inc., 177 Milk Street, Boston 9, Mass. . . . **George T. Welch,** Comptroller and Assistant Treasurer of Vassar College, reports he now makes his home at 168A College Avenue in Poughkeepsie, N.Y. . . . **Irv Jakobson** served as the official representative of M.I.T. in the

inaugural ceremonies for Ralph Gordon Hoxie, the new president of C. W. Post College of Long Island University at Brookville, N.Y. . . . **Dave Woodbury** says: "Here we are, wrapped up in our new home (Ogunquit, Maine), learning all about snow and ice again! Not discouraged a bit. This is by far the best house we've built." . . . **Sumner Hayward** writes: "Saw **Norm** and **Betty Patton** last fall. They are the same as ever." . . . We share the hope which **Helier** and Graciela **Rodríguez** expressed for the holiday season that they may permanently return to this side of the ocean and be able to visit with us all regularly. . . . We can't print their compliments about 1921 Class News for we'd believe them ourselves, but we sure do like that swell pair, **Ed** and Helen **Farrand,** for many reasons, including those kind remarks!

A "Schedule of Holiday Cheer," with cover illustration of the (alleged) Stoneham, Mass., railroad station and a train bulletin which says, "The **Phil Nelles** Christmas Special, bringing you a trainload of wishes from 21 Sunset Road," has this personal note from Phil: "Life may begin at 40, but living begins with retirement. I have been so busy that I often wonder when I had time previously to go to work. I haven't even been able to get at various furniture refinishing that I had planned. Of course, living alone and doing my own housekeeping does require considerable time. Had a new experience this year in putting up over 100 jars of jelly after picking most of the berries myself. Most of it has gone to a lot of good friends. Better drop around for your share before it is all gone." . . . We always look forward to the annual photographic gem from the **Bob Miller** family of Falls Church, Va., each succeeding picture achieving the seemingly impossible attainment of topping the one before. This year's unusually artistic work shows Bob and Helen, their son and five daughters, their son-in-law and the three cute grandchildren. Bob ought to write a book on how it's done for most of us who can't even pose two adults! . . . Highlights of 1962 for **Leon** and Emma **Lloyd** of Westerly, R.I., included a trip to Atlanta to see their married daughter, Edith, Simmons, '54, and granddaughter Cynthia. Daughter Barbara, Simmons, '58, who went to Europe last summer with the M.I.T. Choral Society, as we previously reported, is now the head of the Department of Nursing Fundamentals in the School of Nursing of New England Baptist Hospital. Son David, a senior at Tufts, is in the N.R.O.T.C. Last November, 125 employees of the Narragansett Electric Company honored Leon on his retirement after 33 years of service. The former head of power sales writes: "I have become a freshman 'senior citizen,' although I shall continue my contact as a director of the Mystic Power Company. If the past few weeks mean anything, this retirement business is great. I have so many projects listed to be completed that I shall be busy for some time to come."

With his holiday greetings, **Herb DeStaebler** of 740 N. Duke Street, Lancaster, Pa., says: "I just received the enclosed letter, since it arrived while I was at the Christmas gathering of the DeStaebler clan at my daughter's home at Malibu. Haven't heard from **Rufe Shaw** lately. I'll bet he and Madeline are off gadding some place." The enclosure, from **Bill Wald,** says: "Got the copy of your letter to **Cac Clarke** and I am with you. I prefer Hawaii. When do we go? I am heading for Montego Bay, Jamaica, for the first half of February." . . . We extend sympathy to Bill on the loss of his father, who was 95. . . . The annual report from **Dug** and Betty **Jackson** tells of some 20 or more 1962 trips to professional society meetings, church conventions and to see their widely scattered family and 13 grandchildren. A cruise last fall took them around the Caribbean to San Juan, Trinidad, Barbados, Martinique, Virgin Islands and Nassau. For the present, they are carrying out their many local activities from home base at Tetrastremma, Harmony Hills RFD 1, Havre de Grace, Md.

Rich and Mary Louise **Clark** of Baytown, Texas, report a month spent on Cape Cod last summer with their son, his wife and the grandchildren. Rich continues to be an extremely busy 'unemployed' man. As chairman of the board of trustees and secretary of the finance committee of their church, a member of the board of governors and chairman of the membership committee of the local country club, an officer in the Coast Guard Auxiliary, he says time for golf, boating and fishing has been too limited. They both remark that they never realized that retirement would bring such a busy period. . . . **Ray St. Laurent** phoned as we completed these notes. We are looking forward to an evening with him and Helen at the gathering of the Class of 1921 in New York for the honor award of the Silver Stein of the M.I.T. Club of New York to **Irv Jakobson.** A report of this gala event must await the April issue of The Review. . . . It is with very deep sorrow that we learn of the death on January 1, 1963, of a staunch friend of some 45 years standing, Harold E. Lobdell, '17, former Dean of Students and recently retired Executive Vice-president of the Alumni Association. Ray St. Laurent and your Secretary will always recall our pleasant associations with him ever since the days of our initiation to the staff of "The Tech" in 1917. For everyone in the Class, we extend sincerest sympathy to his wife, Conchita, and to the Class of 1917. . . . Only three months to go until the next meeting of the Class of '21 at Alumni Day on campus in Cambridge next June 10. Plan to be there.—**Carole A. Clarke,** Secretary, c/o International Electric Corporation, Route 17 and Garden State Parkway, Paramus, N.J.; **Edwin T. Steffian,** Assistant Secretary, c/o Edwin T. Steffian and Associates, 376 Boylston Street, Boston 16, Mass.

'22

Clayt Grover, our Past President, Past Secretary and permanent photographer, makes the headlines this month. He has decided to retire as vice-chairman of Whitehead Metals to devote some of his time to personal interests. He will continue as a director and be retained as consultant by Whitehead. Clayt has completed almost 38 years in the metal industry—two with International Nickel and 36 with Whitehead, of which he became vice-president in 1941, president in 1954, and vice-chairman in 1962. He has been active in the Steel Service Center Institute, the National Association of Aluminum Distributors, and the Copper and Brass Warehouse Association, of which he was vice-president and director before his retirement. . . . We were delighted to hear from **Kenneth R. Sutherland** of Sutherland-Abbott, located on Boylston Street in Boston. . . . Your secretary reports a week of continuous golf scores in the Augusta area between 85 and 95. Two of the clear, bright sunny days were not uncomfortable at 23 and 26 degrees. An icicle dripping fountain in Aiken, however, looked decidedly out of place. . . . Our special congratulations and most sincere good wishes go to Mr. and Mrs. **C. George Dandrow,** who will be at home at 10 Brooklands, Bronxville, N.Y. after the first of February. George and Catherine were married at the Reformed Church of Bronxville on the 26th of December last. . . . **Samuel I. Zack** is a newly elected director of the American Society of Civil Engineers and is an authority in the sanitary engineering field. He is vice-president and director of the Sanitary Division of the Harrisburg firm of Gannett, Fleming, Corddry and Carpenter. During his 18-year tenure with the firm, he has been in charge of engineering work for sewerage systems, sewage and industrial waste treatment plants, and refuse disposal projects. Over 50 sewage projects have been planned, financed and built under his direction. Sam was previously with the Stone & Webster Corporation on the Manhattan Project. He is the author of numerous articles and received the Kenneth Allen Memorial Award of the New York Sewage Works Association in 1935 and the Society's James Laurie Prize in 1956. He has served as president of the Central Pennsylvania Section of ASCE and was chairman of their fund raising campaign for the United Engineering Center. He is a past president of the Pennsylvania Water Pollution Control Association. . . . Reports from the ASCE Convention in Detroit tell us of **Sigmund Cohen**'s work with the Department of Public Works in Detroit. Sig has a top job in expressway design and engineering.

This is the season to drop in on **Frank** and Carlys **Kurtz,** 734 N. W. Ninth Street, Delray Beach, Fla. They report swimming and camping in their backyard to be excellent. . . . **Oscar Horovitz** was pictured in the Boston Herald in December as chairman of the Fund Raising Committee of the M.I.T. Boston Stein Club presenting a Scholarship Fund check to Dean Gordon S. Brown, '31, for $114,000. Further pledges will add another $100,000 to that amount. Oscar started on January 25 for a three-month trip around the world with special emphasis on South Africa and Australia. He

must rush back during April to take over your secretary's job while I visit Japan and Hong Kong. . . . The sympathy of our class has been extended to Senora Conchita Lobdell. Lobby was a great friend of all of us and we will miss him very much. . . . Our sympathy is also extended to **Frank H. Wing** whose wife passed away at their winter home at Fort Lauderdale, Fla. . . . **Charles E. Brokaw,** manager of the Denver field office of the U.S. Department of Commerce, spoke at Eastern New Mexico University in November on the subject "The Southwest: Its Current Economic Potential." Chuck is recognized as an expert on the economic potential of the West and Southwest. He has been at his Denver position since 1946, having previously been chief of the Incentive Division, Bureau of Foreign and Domestic Commerce. He also held positions with major engineering, construction, and motor car corporations until World War II. During the War he saw action in Africa, Italy, New Guinea, Dutch East Indies and the Philippines. . . . New addresses have been received from the following: **Randall W. Meech,** Pasadena, Calif.; **Robert Prescott,** Essex Fells, N.J.; **Herman Davies,** Oakland, Calif.; **Edwin H. Koehler,** New York 21, N.Y. . . . Our sympathies are extended to the families of Miss **Dorothy Durling** of Wrentham, Mass.; **Francis P. Sammett,** Meriden, Conn.; **Paul C. Washburn,** Leominster, Mass. . . . A very early, sunny, warm, dry, healthful spring to you all.—**Whitworth Ferguson,** Secretary, 333 Ellicott Street, Buffalo 3, N.Y.; **Oscar H. Horovitz,** Assistant Secretary, 33 Island Street, Boston 19, Mass.

'23

From the returns to date we should have a fine class representation at the Chatham Bars Inn for our 40th Reunion in June. If you have not signed up it is not too late, but time is getting shorter. . . . A picture in the Boston Herald of December 25, 1962 should be of interest to all class members. **Dave Skinner,** our class agent for the Alumni Fund, is shown planting a "kiss" on "Miss Polaroid of 1962" at their Annual Christmas Party. I suppose this is part of the duties of a vice-president—nice work if you can get it, Dave. . . . **"Tex" Beretta,** civilian aide to the Secretary of the Army for the Fourth Army Area, attended the Annual Conference of Civilian Aides at the National War College, Fort McNair, Va., on December 3-4, 1962. The civilian aides were brought up-to-date on recent developments within the Army and plans for the future. Civilian aides to the Secretary of the Army are appointed for two-year terms to represent the Army in interpreting policies and doctrines for the civilian communities in their area of interest. They also advise the Secretary and the Army Chief of Staff on matters of mutual interest to the Army and the public.

We are all saddened by the death of "Lobby" of the Class of 1917. He has been one of the regulars at all 1923 reunions and we will miss him. . . . We regret to report the death of **Charles Edward Snow, Jr.** on November 11, 1962, in Nutley, N. J. He was associated with the Western Electric Company of New York City. His work was of vital importance to the company and to the U. S. Government in its missile development. An accomplished cello player he was formerly a member of the Nutley Symphony Orchestra. . . . We regret to report the death of **Oscar E. Freidhof** on April 21, 1962, at Fort Thomas, Ky. . . . We wish to report the following address changes: Dr. **Robert V. Burns,** 902 South Greenway Drive, Coral Gables 34, Fla.; **Salvatore A. Guerrieri,** P.O. Box 42, Rowayton 1, Conn.; **Arne Lier,** 89 Pine Street, Millburn, N. J.; **Philip L. Riley,** 1812-14th Street, North, Arlington, Va.; **G. Wilbur Seymour,** 6924-32nd Street, N.W., Washington 15, D. C.; **Albert H. Steinbrecher,** 4538 Camino Molinero, Santa Barbara, Calif.—**Herbert L. Hayden,** Secretary, E. I. duPont deNemours and Company, Leominster, Mass.; **Albert S. Redway,** Assistant Secretary, 17 Old Orchard Road, North Haven, Conn.

'24

Your classmates have been enlightening the citizens of New Jersey recently on divers subjects. **Walt Gress** told the Mercer County Chapter, Society of Professional Engineers all about the 11 billion gallon Spruce Run reservoir. As chief engineer of New Jersey's Division of Water Policy and Supply, it was Walt's baby from the start. A few days later **Del Replogle** lectured in a Comparative Religion series at Ridgewood's Temple Israel. Del is vice-chairman of the American Friends Service Committee Board and spoke for the Religious Society of Friends. We knew that Del was born in Alaska, but didn't know until now it was because his father was a Quaker minister and missionary there. . . . Patty **Robinson** reports that **Bill**'s daughter, Jane, had a daughter born last September. Also in September, Bill's father died at the age of 96. Just a month earlier he had flown back to Cleveland from Boston alone, and had given Patty a dissertation on the World Series play-off just four hours before he died. A remarkable man.

We told you recently of Hanne, daughter of **Kaare Aass** of Oslo, who completed training as a physiotherapist there last fall. She wants very much to practice in this country for a while, and in January came to New York, without a position waiting for her but with good prospects. . . . The annual report of the **Nevin** family reveals that **Jack** and Gerry, with son John, have moved into an apartment "with the most breath-taking view of all of Mexico City." With the rest of the family scattered, they were rattling around in their big house. Jack has given up his annual "Senior Tennis Champion" title, has taken up bowling instead. . . . **Mike Amezaga** has taken the big step. He writes, "You will be interested in knowing that I will become an immigrant into the U. S. (if the immigration authorities will have me!) on December 21." . . . Early in January the **Lehrers** and the **Kanes** spent a very pleasant evening with Julia (Amezaga) Talavera and her husband Rafael. They were heading south in a matter of days for Rio, Rafael's new headquarters. **Ray** assured him that "sometime" he and Dotty would drop in on them. The "sometime" came sooner than expected. Making up their minds in a hurry, on January 25 the Lehrers took off on a several weeks' tour of South America. Maybe we'll get another running report.

Word comes of **Emilio del Prado** via his sixth son, who stopped off to see **Hank Simonds** in California. Del is still teaching mathematics at Feati University in Manila, and now boasts of 22 grandchildren. Let the **Cardinals** take notice. The Cardinal family at home is shrinking fast, with only two children left. **Paul,** as you know, is our vice-president for Greater New York, and he has been assisted for some time in sending out luncheon and other notices by **Nate Schooler.** Now that task has been taken over by **Howard Stevens.** Don't forget, if you're in New York on the Wednesday of the second full week in any month, join them for lunch at the M.I.T. Club in the Biltmore. You will get a cordial welcome.

We were all saddened to hear of Lobby's death, especially since it followed so closely on his retirement. Lobby and Conchita had planned for this occasion for years, and were looking forward to a happy future in Mexico. We shall miss them both at our 40th reunion. . . . It's too late to wish you well for Washington's Birthday and too early to start celebrating St. Parick's Day, but if you, too, have had to put up with another northern winter, take heart in the thought that this, too, shall pass. In fact it almost has. —**Henry B. Kane,** Secretary, Room 1-272, M.I.T., Cambridge 39, Mass.

'25

One address change received during the past month indicates that **George F. Jourdan,** who has been in Washington, D.C., has retired and is now living in Lantana, Fla. . . . A most interesting letter has been received from **Geoff Roberts** who stopped in my office a few months ago and since that time has covered much of the United States by car, hitting most of the better spots during his trip. Upon his return to Berkeley, Calif., he became heavily involved in settling family property affairs before returning to Malaya where, as most of you know, he has been located for a number of years. Geoff has bought a place up in the Berkeley Hills in the Wildcat Canyon Road district, overlooking the pine trees and, of course, the Bay area, to which he plans to return after his sojourn in the tropics.

Kammy Kametani sent his Christmas greetings to me; and when **Mac Levine** and his wife visited Japan last October, Kammy instructed Mac to pass on his greetings to all the members of the class. . . . Mrs. **Mary Morrison Kennedy** is

mentioned in a recent issue of the St. Paul, Minnesota Pioneer Press, with the intriguing headline, "Decorator of 31,770 Rooms Sets Comfort as Her Goal." Mrs. Kennedy is vice-president of decorating, design and architecture for the international Sheraton Hotel system and was recently in the Twin Cities, attending dedication ceremonies at the new Sheraton Hotel in Minneapolis. . . . In case you missed 'Business Week' for December 15, 1962, may I quote **Maurice T. Freeman,** President of Loomis-Sayles Mutual Fund, Inc., who says: "With so many problems continuing to dominate the investment equation . . . we believe that a basically conservative investment position is warranted . . ."—**F. L. Foster,** Secretary, Room 5-105, M.I.T., Cambridge 39, Mass.

'26

There will be no run out to Pigeon Cove this weekend—we are iced in. The main highways are sanded but the Volvo is encased in a crust nearly ½ inch thick and it is still freezing and sleeting, so why chance it. . . . I met **Bill Meehan** in Schraffts' Restaurant the other noon for a quick greeting. Bill said, "I'm going to write about the doings on Cape Cod and send them to you," to which my fast reply was, "Great—do it this weekend;" so I suppose, instead of doing his homework for A & P, Bill is sweating away on his contribution to the notes. . . . At the M.I.T. Club of Boston luncheon last Thursday a personable young man across the table introduced himself as Al Libbey, '59. Sizing him up quickly for family resemblance, I asked if any of his relatives ever attended M.I.T. to which he admitted that another **Al Libbey,** '26 is his father. Young Al works for the Boston consulting firm of Edgerton, Germeshausen and Grier. Our Al has his own contracting firm located in Branford, Conn. This brought back memories of the summer after freshman year when I washed dishes in a small summer hotel in Branford, called The Waverly, for 25 bucks a month and board. Is The Waverly still there, Al? . . . A note from Charles V. Reeves, '23, from which I will quote: "I am enclosing a clipping from The Washington Star concerning the death of **Francis D. McKeon.** 'Mac' had worked for the Manhattan District and the AEC since the early 1940's as a construction engineer. He was well known by all the old-timers at the various production sites. Starting in the Boston office, he later spent several years at Oak Ridge, but in recent years he had been attached to the Washington offices. 'Mac' was said to have been the sixth U.S. Naval officer to qualify as a flier having served some time in the Navy after graduation. Sorry that I have no more detail for you, but 'Mac' did not talk much about himself. Sincerely, Charles V. Reeves, '23." For the class, sincere sympathy is extended to Mrs. McKeon and his two daughters and five sons. We appreciate Mr. Reeves' kindness in writing.

Here's an address change from my two-thirds namesake, **George Warren Bates.** He has moved from Reading, Mass., to 325 Tallow Lane in Shreveport, La. Once upon a time the M.I.T. Musical Clubs had a violin solo rendered by **George Warren Smith** accompanied on the piano by **George Warren Bates.** I've long since forgotten the occasion of the concert, but I well remember that there never was a request for a repeat performance. I haven't seen my two-thirds namesake since graduation, but he taught school in the Boston area so I assume he is doing the same in Shreveport. . . . Another address change indicates that **John Oakley** has finished his tour of foreign duty and has moved from Amiens, France, back to Akron, Ohio. I was pretty sure John was with Goodyear but to make sure I have phoned **Pink Salmon** who checked his class register and found Goodyear to be correct. While talking with Pink, he mentioned that he had seen **Flint Taylor** recently and that he looks wonderful and is no longer with Travelers Insurance Company, but with an agency whose name Pink could not recall. The phone call also brought us an invitation to dinner at Pink's home in Hingham. We have been trying to get together for a long time but living on opposite sides of Boston makes it difficult. The phone call to Pink also brought a halt to class notes, and I became involved in some hobby activities in the basement. . . . Now that I'm picking up the thread again it is 9:45 P.M. and the only sensible thing to do is to say good night. Before doing that, let me quote verbatim from **George Makaroff's** Christmas card. George always includes some sage remarks to carry one into the New Year. Let's listen to him: "Dear George, I hasten to clear the fog of mis-information that has settled over Pigeon Cove (no doubt due to its proximity to a place known as Hyannisport). Rest easy, friend, the sons of '26 have not all mated, and if no other worthy contender is available, I am willing to pick up the mantle of bachelorhood and carry on the tradition. Not to be boring or flippant, I shall offer no argument and take it by default. Just mail it to me via the next issue of The Review, and see that no female hands alter or otherwise hex that noble and unique garment. Best to you and yours, George Makaroff." We herewith mail you the mantle, George. . . . Finally, a communique from **Walter Lobo:** "Dear George, I thought that you might like to have the enclosed notice as it may be some time since a '26 man received a doctor's degree, at least, of textile science. Sincerely, Walter E. Lobo." **"J. B. Goldberg,** consultant to the textile and allied industries, was awarded the honorary degree of doctor of textile science by the Philadelphia College of Textiles and Science. Mr. Goldberg was cited for his many contributions to the textile industry, through his lectures on textile developments and research." . . . The blanket of ice that has been with us since Saturday A.M. is still here on Sunday evening so if it is O.K. with you I shall pull up my electric blanket and dream of sailing a boat on a calm, sunny sea in some warm climate. Until April, best wishes.—**George W. Smith,** Secretary, E. I. duPont Company, 140 Federal Street, Boston, Mass.

'27

A search of the current directory for members of the Class of '27 who have participated in the activities of the Alumni Association reveals the following impressive list: **William L. Taggart, Jr.,** President of the Alumni Association and member of the Executive Committee and the Alumni Council; **Glenn D. Jackson, Jr.,** class representative on the Council; **Richard P. Hawkins,** Mexico City representative of M.I.T. Club. Class Officers and Class Agents: **James A. Lyles,** President; **Joseph S. Harris,** Secretary; **J. Robert Bonnar,** Treasurer; **Richard P. Hawkins** and **Glenn D. Jackson, Jr.,** Class Agents. Officers of M.I.T. Clubs include **John J. Dunn,** President of M.I.T. Club of Eastern and Northern Maine; **William J. Heymans,** secretary-treasurer, M.I.T. Club of Belgium; **George M. Cunningham,** Vice-president, M.I.T. Club of Southern California; **Fernando A. Canadá,** Vice-president, M.I.T. Club of Spain; **Arturo Marques,** President, M.I.T. Club of Uruguay; and **Gordon L. Calderwood,** Vice-president, M.I.T. Club of Rochester, N. Y. Members of Educational Council of the Institute include **Lawrence B. Grew,** New Haven area; **Richard L. O'Donovan,** Miami area; **Ralph B. Johnson,** Hawaii; **Morgan A. Collins, Jr.** and **Frederick J. Hooven,** Detroit, Mich., area; **A. Donald Green,** Northern area of New Jersey; **J. Robert Bonnar,** New York City area; **Clarence Wynd,** Rochester, N. Y., area; **David E. Traux,** Charlotte, N. C. area; **Howard P. Ferguson,** Cleveland, Ohio area; **G. A. Hall,** Columbus, Ohio area; **W. G. Payne,** Dayton, Ohio, area; **Henry T. Lyons,** Allentown/Bethlehem, Pa., area; **Albert C. Smith,** Scranton, Pa., area; **C. G. Davies,** South Carolina; **L. B. Peterson,** Norfolk/Newport News, Va., area; and **Arturo Marques,** Uruguay. Past presidents of the Association from the Class of '27 include **Dwight C. Arnold,** 1955-56, and **Clarence L. A. Wynd,** 1960-61.

Clarence L. A. Wynd, a Vice-president and General Manager of the Kodak Park Works, was recently elected a director of the Eastman Kodak Company. He has had a long and varied career with Kodak, having joined that company in 1927 as a chemical engineer in the roll coating department, where film is manufactured. After serving as a supervisor in the manufacturing experiments department for six years, he was named assistant superintendent of the department in 1934. In 1944 he was appointed assistant general superintendent of film manufacturing, and became assistant to the Kodak Park general manager in 1947. Six years later he was named assistant general manager there, and was elected as a Kodak vice-president in 1956. He assumed his present position of general manager of the Kodak Park Works in 1959 and, in addition to his responsibilities there, he is also vice-president and a director of East-

man Gelatine Corporation. Clarence has been a very active member of our class, having held various offices in the Alumni Association over the years.

We regret to advise of the death of Dr. **Felix Bardach** of 570 Fort Washington Ave., New York City. He lived in Paris until 1946, and later was an industrial consultant, and a lecturer at the Evening and Extension Division of City College of New York. He died February 9, 1962. . . . **Bob Bonnar** has been appointed to the newly established position of Director of Industry Relations for General Aniline and Film Corporation, at 111 West 50th Street, New York 20, N. Y. He joined the corporation in 1935 as a sales representative. Most recently, he has been director of trade relations of the Dyestuff and Chemical Division. Bob is well known for his active interest in M.I.T. and Class of '27 affairs. . . . "The Evolution of an Architect" by **Edward D. Stone,** has been published by Horizon Press (New York). This autobiography carries the reader from the design of the Museum of Modern Art in New York, our Indian Embassy, our World's Fair Pavilion, and the Hartford Gallery of Modern Art, to the National Cultural Center in Washington, and many more around the globe. . . . **Charles Carr** continues his public lecture tour on Christian Science. We have a note of his appearance in Pittsburgh. . . . **Hank Kurt,** again this year, is one of the organizers of the joint Course XVI-Institute of the Aeronautical Sciences dinner in NYC, in January. Hank is with Grumman. . . . The following new addresses have been received: **S. S. Auchinchloss,** 255 West Street, Dedham, Mass.; **Lucas E. Bannon** (see class notes of Nov., 1962) Reservoir Lake, Sanford, Fla.; **Robert G. Dexter,** Bolton Road, Harvard, Mass.; **Robert W. Hancock,** 1333 Kathmar Drive, Jackson, Mich.; **Albert P. Kauzmann,** 426 Wyoming Avenue, Millburn, N. J.; **Emory F. Patterson,** Stran-Steel Corp., 2339 Washington Road, Washington, Ill.; **Marcus P. Robbins,** Weston, Vt.; **Virgil Quadri,** 60 E. Bellevue Place, Chicago, Ill.; **Carl R. Sydenstricker,** 3326 Bosworth Road, Cleveland 11, O.; **J. B. Wertz,** Camino Pequino, Santa Fe 9, N. M.—**J. S. Harris,** Secretary, Southgate, Bronxville, N. Y.

'28

George Palo's hometown newspaper, the Superior (Wis.) Telegram, ran a complete story November 9 about George's career with the Tennessee Valley Authority. This was occasioned by an article in "Power Engineering" describing his outstanding engineering accomplishments in some detail. George, who graduated in Course I, became associated with TVA in 1934. Except for two years of service with the Navy during the war, TVA has occupied almost his entire professional life. Progressive advancements led to his appointment as chief engineer in 1959. This put George in charge of the nation's largest engineering organization—a post he has held ever since.

Another classmate, very much in the news in recent months, is **John Stack,** Vice-president of Republic Aviation Corporation, Farmingdale, N.Y. "Missiles and Rockets" for October 1, 1962, named John as the recipient of the Wright Brothers Memorial Trophy. Several recent news items have described the development of a supersonic variable wing plane by the design team headed by John, while he was with NASA. . . . **Charles Topping,** I, was elected a director of the Producers' Council, Inc. at a recent meeting. Chuck is an architect and civil engineer with E. I. duPont de Nemours. . . . **Henry Lamb** was elected a regional vice-president of the American Society of Safety Engineers at its annual meeting, October 29, 1962, in Chicago. Henry began his business career with Stone and Webster, then became safety engineer for Liberty Mutual Insurance Company in 1931. From 1938 to 1942, he was safety engineer for the Scott Paper Company. In 1942, he joined the staff of the American Standards Association and is now safety engineer in charge of the organization's program.

If you have not yet sent in your reservation for the 35th Reunion at Harwichport June 7, 8, and 9, how about right now? This promises to be one of the real bright spots in these mellowing years of our class history. Don't let the misplaced reservation card trouble you—just sent a note to **Jim Donovan,** Artisan Metal Products, Inc., 73 Pond Street, Waltham 54, Mass., and tell him you will be there, either by yourself, with your wife, and/or whoever else of your family wants to enjoy a weekend holiday at beautiful and historic Cape Cod. P.S.: Also send a check for five dollars payable to Jim.—**Walter J. Smith,** Assistant Secretary, 15 Acorn Park, Cambridge, Mass.; **George I. Chatfield,** Secretary, 11 Winfield Avenue, Harrison, N.Y.

'30

From the U.S. Geological Survey Research Center at McLean, Va., **Dave Landen** reports that he is busily engaged in applying aerial surveys to topographical and geological mapping and doing research on photogrammetric mapping. He is chief of the Special Projects Unit of the U.S.G.S. Topographical Division. Last summer he was the U.S.G.S. representative at a symposium on photointerpretation in Delft, Holland, where he gave a paper entitled "Photo Interpretation of Ice and Snow Features in the Antarctic Mapping Program," He and his wife also visited several mapping establishments in England and France. The Landens live in Arlington, Va. Dave is active in the D.C. Council of Engineering and Architectural Societies of the American Society of Photogrammetry. . . . **Juel Lensch** is chief, Military Branch, Army Corps of Engineers in San Francisco. He has a married daughter, Claudia, who graduated from Stanford and a son, Jay, in high school. He says he attends alumni meetings regularly, but never runs into any classmates. Me too, Juel. . . . Except for a brief interlude as associate director of Airborne Instruments Laboratory during W.W. II, **Bill Lodge** has worked for CBS since graduation, moving up through various engineering jobs to his present position as vice-president of affiliate relations and engineering for CBS-TV. His impressive list of titles includes director of the National Association of Broadcasters, fellow and past governor of the Society of Motion Picture and Television Engineers, and Fellow of the I.R.E. Bill and his wife live in Hastings-on-Hudson. . . . Changes of address: **Robert S. Cook,** 206 Newton Street, Orange, Va.; **Gilbert L. Cox,** International Nickel Company, Inc., Research and Development Department, 67 Wall Street, New York 5, N.Y.; **Howard S. Gardner,** 81 South Meadows Drive, Appleton, Wis.; **Merritt L. Hulett,** 2008 Glass Avenue, Rockport, Texas; **Louis C. Rubin,** 5532 Ladybird Lane, La Jolla, Calif.—**Gordon K. Lister,** Secretary, 530 Fifth Avenue, New York 36, N.Y.; **Ralph W. Peters,** Assistant Secretary, 68 Village Lane, Rochester 10, N.Y.; **Louise Hall,** Assistant Secretary, Box 6636, College Station, Durham, N.C.

'31

A note from **Dave Goodman** brought news that his family is carrying on the Tech tradition. Congratulations go to his son, Lawrence, who has already been accepted to the next entering class at the Institute, the Class of '67. . . . **John MacBrayne,** director of general services for Union Bag Camp Paper Corporation, whose name appears frequently in paper trade publications, has been named general chairman of the Engineering Division of the Technical Association of the Pulp and Paper Industry (TAPPI). John lives in Mountain Lakes, N.J., where he was recently named to the town council. . . . Word of Captain **Ralph S. Feola's** death on September 21, 1962, has been received from Mrs. Feola, to whom we extend our deepest sympathy. . . . It is also with sadness that we report the death of **Walter P. Paltz** last November at his home in Fanwood, N.J. Walter retired as an engineering associate for the Esso Research and Engineering Company in London.

New addresses reported this month include **Joseph M. Buswell,** 4236 Carnation Place, Honolulu, Hawaii; Vice-Admiral **Clarence E. Ekstrom,** 825 Margarita Avenue, Coronado, Calif.; **Thomas Knox,** 4207 Hewitt Avenue, Silver Spring, Md.; and **Henry M. Newcomb,** 269 Bryant Avenue, White Plains, N.Y.—**Edwin S. Worden,** Secretary, 35 Minute Man Hill, Westport, Conn.; **Gordon A. Speedie,** Assistant Secretary, 90 Falmouth Road, Arlington 74, Mass.

'32

A note from **Adolph Warsher** brings us up to date on his present whereabouts: "Have been at the Waltham, Mass., headquarters of Sylvania Systems

Division since the early part of 1960. I am manager of engineering standards for the Systems Division of Sylvania Electric Products. Since this includes all the General Telephone and Electronics System subsidiaries co-operating on systems contracts, it certainly takes me around the country on the fly. The family—wife Marjorie, one son James (Boston University Public Relations major, 21, unmarried) two cats, one dog—was uprooted from our New Jersey homestead of some 22 years standing and treked back to New England. We are living in Wellesley Hills, which is as close a resemblance to our old Ridgewood area as we could find, and are now repatriated New Englanders back in Tech's back yard. I might add that I get lost trying to find my way around the maze of buildings which now make up the M.I.T. complex. Belong to the M.I.T. Club of Route 128 and try to make their evening meetings, but usually cannot make the luncheon meetings. If there are other '32'ers hereabouts perhaps we might get together some evening for a gab-fest." . . . Customers and friends of **John F. Yeager** and his partners were guests at a recent open house of the Fair and Yeager Insurance Agency, Inc., in its own modern office building at 10 Main Street, Natick, Mass. Best wishes, John, and now when we drive through Natick we can find you easily.

A news clip from the Springfield, Mass., News about a classmate's son, inadvertently gives us some interesting news about his father, **Arthur M. Marshall.** The son, David M., age 28, was recently sworn in as an attorney. The father, our Arthur M., worked as an engineer, studied law, and became a lawyer in 1953 at the age of 42. But that's not all. His father, the late Samuel Marshall, after many years of work in other areas, studied law, passed the bar examinations, and became an attorney in 1941 at the age of 62. That's three generations of lawyers in 21 years, plus an engineer, too. . . . Dr. **Isaac Schwartz** turned the tables on your secretary; he asked me the questions in the following note: "What would be of interest to the class? Would it be the trip Caroline and I took to Europe last summer with a tour through Lloyd's of London and a delightful lunch in 'the City' thanks to the open sesame of a letter from **Tom Sears?** The trip was mostly through the Scandinavian countries with their hospitality and an exciting combination of individual freedom with community responsibility. Or their magnificent fishing? (I caught a 37½ pound salmon.) Or my attendance at the 1962 Alumni Officers' Conference—with the startling thought that those of our class who are prominent in the engineering and scientific world today would be helpless if we had only the learning acquired in our undergraduate years? Or the adventure of becoming grandparents for the first time?" I couldn't pick one out, so you make the choices. And if this gives you some ideas, write us about your own adventures. They will be of interest to the class. . . . It becomes inevitable as the years roll on that we must report deaths of more classmtaes. The death of **Carl L. Meng,** Course I, of Phoenix, Ariz., on January 12, 1961, and the death of **Robert Tate,** Course XIII, of Seattle, Washington on October 18, 1962, have recently been reported to us. . . . Will get in that list of Class of '32'ers who are working on Alumni Affairs next month.—**Elwood W. Schafer,** Secretary, Room 10-318, Ext. 621, M.I.T., Cambridge 39, Mass.

'33

Our Midwestern correspondent, **Cal Mohr,** reports that **Chuck Thumm** has left the rigors of Chicago winters and the contracting business for the Sahuaro Vista Guest Ranch in Tucson, complete with horses, sunshine, and cool evenings. Cal reports also that **Adam Sysko**'s son is captain of the University of Delaware basketball team, a chip off the old block. Speaking of old blocks, Adam was looking chipperer than ever the last time we met. Congratulations to Cal Mohr himself for his election to the vice-presidency of the Chemical Equipment Sales Engineers Association in Chicago. . . . **Bill Pleasants** reports via Christmas card that he is now with Associated Universities, of which M.I.T. is a member, as chief engineer, National Radio Astronomy Observatory in Green Bank, W.Va. . . . Congratulations too to **Arthur Ruge,** recently elected director of MKS Instruments. . . . **V. Lawrence Parsegian** breaks into the press with two articles on the intriguing subjects of "Atomic Impressions from the Soviet Union" and "Makework Projects Waste U.S. Brainpower."

John Wiley spoke recently at the Flight Transportation seminar here on campus; a real professor is he. . . . Reports continue to pour in on **Don Fink**'s appointment as head of the recently formed 160,000-member Institute of Electrical and Electronic Engineers. . . . And on the local scene, our **Dick Morse** has organized a world-wide company with the fascinating name of Cryonetics to do research and development on apparatus used for ultra low temperature work. Dick will keep a kindly eye on operations as chairman of the board.—**R. M. Kimball,** Secretary, Room 7-206, M.I.T., Cambridge 39, Mass.

'34

These notes are being written in January, so I can include some informative and interesting comments that were made on appreciated Christmas cards. . . . A note from **Jack** and Grace **Cary** announced that they have joined the rapidly growing grandparent league via their son John. Their daughter Sharon is in the Graduate School at the University of Michigan, and their daughter Karen is a sophomore. . . . A short but pertinent note from **Earl K. Murphy:** "We are now down to only one daughter in college and have been able to renew an old habit—eating." . . . A long message from **Ken** and Peg **Ryder:** Their oldest son, Dave, has just returned from Army service at Fort Sill, Okla. He expects to return to school and obtain his doctorate in psychology. Daughter Sue is teaching art at a junior high school in Huntington, Long Island. Daughter Lynn is a sophomore at North Adams State College. Daughter Barb is a sophomore in high school, and daughter Mary is in the eighth grade. Ken is "working his head off at Hamilton Standard in Connecticut."

It is with great sorrow that we have to report the death of **David Ingalls.** Dave had put in a full business day with many conferences until late hours. Instead of then returning to his home in Westfield, N. J., he decided to drive to Hartford, Conn., where he was to have business early the next morning. At 3:15 A.M. on December 19 his station wagon went out of control on the Connecticut Thruway in Stamford and he was killed instantly when the car hit an embankment. It appears, from discussions with the state trooper who investigated the accident, that Dave may have dozed momentarily. Dave's wife, Ginny, will find this loss most difficult as she lost her first husband in an airplane crash exactly 20 years before. His two sons, David, 17, and John, 14, will dearly miss their energetic father. An indication of how Dave was regarded comes from the Wardlow Country Day School of Plainfield, N. J. They wrote, "David Ingalls was certainly a friend to many and the various contributions and warm words we have received in his memory makes us even more aware of the high esteem in which he was held." Our sympathy is sent to his wife, Virginia, and two sons.

Angus McCallum, an architect in Kansas City, was named the new Central States regional director of the American Institute of Architects at an October, 1962, A.I.A. regional conference in Omaha, Neb. He formally takes office this coming May for a three-year term. Angus has been active in local, national, and international activities of A.I.A. . . . **William H. Mills** was requested by M.I.T. and accepted the honor of representing M.I.T. at the inauguration of Dr. William H. Kadel as the first president of Florida Presbyterian College in St. Petersburg, Fla., on January 13, 1963. Bill as the general contractor has built all of the buildings so far erected on the campus of this new college.—**Malcolm S. Stevens,** Secretary, 9 Glenfield Road, Barrington, R. I.; **J. P. Eder,** Secretary, 1 Lockwood Road, Riverside, Conn.; **G. K. Crosby,** Secretary, 44 Deepwood Road, Darien, Conn.; **H. E.Thayer,** Secretary, 415 W. Jackson Road, Webster Groves 19, Mo.

'35

H. Gordon Scowcroft, a former member of the Faculty of M.I.T., has been appointed marketing vice-president of the Foods Division of Lever Brothers Company. Gordon was marketing vice-president of the Special Products Division, which has now been merged with the

Food Division. Gordon previously was marketing vice-president of the United Fruit Company from 1959 to 1961. He earlier was associated with the Campbell Soup Company for nine years as director of marketing research, general product marketing manager, and subsequently director of marketing development. He now resides in Greenwich, Conn. (Lakewood Circle, North) with his family. . . . Back in April, 1961, two attractively framed pictures of M.I.T. were prepared with silver plate inscriptions by a committee of our class for presentation to our two long-term class presidents: **Jack Colby** who served from our delayed 10th to our 25th Reunion and **Walter Stockmayer** who was president through our years at Tech and up until Jack Colby took over. We easily caught up with Jack Colby and the presentation was made by **Jack Ballard** at the M.I.T. Club of Milwaukee. But Stocky was on the move and hard to catch up with. After several luncheon dates that mis-fired, the picture was finally crated and shipped to him at Dartmouth College. Stocky's note to **Leo Beckwith** follows: "I'd like to thank you along with **Gerry** and the rest of the class for the undeserved and beautiful picture of Tech. I thought (old minds play such tricks) I had acknowledged it long ago and was horrowstruck to learn how long I had delayed. Be assured that, in spite of my rudeness, it is very deeply appreciated."

The following letter is being sent by the 30th Reunion Site Selection Committee headed by Jack Colby to all who attended our 25th Reunion. If you were one who did not receive the letter and questionnaire but are interested in the proposal, please write to any of the class secretaries immediately. In fact, we invite all of you to give us your thoughts relative to our 30th. "Dear Classmates and Wives: All of us who attended the 25th Reunion at M.I.T. had such a wonderful time renewing acquaintances that it was unanimously agreed we should have another big reunion on our 30th, in 1965. The suggestion was made by someone that we should consider combining such a reunion with a cruise in the Caribbean. I was asked to investigate the situation and report my findings to the class officers by the end of 1962. A meeting was recently held in Boston in conjunction with a business trip of mine, at which the following suggestions for our 30th Reunion were presented. All class members present were extremely enthusiastic about the plans and would like to get your reaction so that we can decide how to proceed. I have come up with a ship, the "M. S. Meteor," which the Class of 1935 can charter for a 10-day cruise in the Caribbean, leaving from Miami. The "M. S. Meteor" holds approximately 145 people, and we would occupy the entire ship. If the decision is made early in 1963, we can pick our dates (between January 15 and March 15, 1965) and pick our points of call throughout the Caribbean.

"Those of us who have taken a Caribbean cruise during the cold winter months know what a perfect vacation it makes. If you combine such a cruise with the fact that we would have our own ship and all our own friends on board, it would make this a vacation that no one would ever forget. Of course, as with any cruise, it is expensive, but I think all of us, especially the wives, are entitled to splurge at least once while we are young enough to enjoy it. By making plans two years in advance, we should be able to economize enough here and there to finance a once-in-a-lifetime vacation. The cost of the cruise per person will amount to approximately $425. We will propose to draw lots with regard to room assignments. Those unlucky enough to draw the best rooms would, of course, have a moral responsibility to hold the majority of the cocktail parties. As we will have a heavy advance financial commitment in order to charter the entire ship, we must get definite commitments now. Please talk this over seriously between the two of you and return the enclosed questionnaire."

Incidentally, I neglected to tell you that **Henry King** also attended that luncheon the day after Thanksgiving at which Jack Colby reported. . . . Our class is "plunging" to the extent of $20 or so to cover the postage for a mailing being financed by the Alumni Association which has as its prime purpose the increasing of the readership list of our Class News. If this also generates more news and letters, we shall all benefit. . . . **Hal Bemis** wrote a note to Leo Beckwith as follows: "Today, with sadness, I have sent to you by insured parcel post the Class of 1935 Golf Cup. My grief is tempered both by the pleasure I have had in being for a time the possessor of it, and by the opportunity to acknowledge again your generous thought in donating this fine trophy." The Cup will be engraved "1962—William T. Baker" and then sent along to the new champion to keep on his mantlepiece for nearly a year. . . . I am sorry to report belatedly the death of one of our classmates, **John E. Fitzgerald, Jr.,** Course X. John died July 8, 1962, and formerly lived at 50 Belair Avenue, Providence, R.I. . . . —**Allan Q. Mowatt,** Secretary, 11 Castle Road, Lexington 73, Mass.; Regional Secretaries: **Edward C. Edgar,** Kerry Lane, Chappaqua, N.Y.; **Hal L. Bemis,** 510 Avonwood Road, Haverford, Pa.; **Edward J. Collins,** 904 Merchandise Mart, Chicago 54, Ill.; **Gerald C. Rich,** 105 Pasatiempo Drive, Santa Cruz, Calif.

'36

Last month we reported the death, on November 26, of **Carl A. (Tony) Mapes.** A clipping from the Grand Rapids (Mich.) Press supplied details. Tony, 47, director and vice-president of C. H. Runciman Company of Lowell, Mich., since 1945 and a past president of the Lowell Rotary Club, died unexpectedly of a heart attack at his Fort Lauderdale, Fla., home. He was a member of the Cascade Hills Country Club and the Peninsular Club. He was a native of Washington and after graduation from M.I.T. he attended the Harvard Business School. He was a chemist and chief of laboratory specialties for the Texas Oil Company in Port Arthur, and from 1942-45 he was assistant petroleum administrator in Washington. Surviving are his wife Jane Runciman Mapes; a daughter, Mrs. Samuel Warrimer, 2nd, of Mapleshade, N.J.; a son, Joseph, and a grandson. Funeral services were held in Bethesda and burial was in the Washington area. To his family the Class of 1936 extends its sincerest sympathy.

T(homas) Ledyard Blakeman, community planning consultant, addressed the Trenton (N.J.) League of Women Voters in November. His topic was "Regional Planning." He served as director of the New Jersey State Planning Board for seven years, and has acted as consultant for municipal, state and regional groups; he also lectures at the N.Y.U. Graduate School of Public Administration. He makes his home in Princeton and from there carries on his business as a planning advisor. . . . **Jack Hamilton** has been named vice-president-staff director and secretary-treasurer of Menasco Manufacturing Company in Burbank, Calif. He was general sales manager of the company from 1943 to 1956, and since then has been vice-president of sales. The company manufactures aircraft landing gear, shock absorbers, and pressure vessels for missiles and space vehicles. He is also a proud grandfather.

A Christmas letter from **Hank Lippitt** is reassuring. Somehow in between trips to Mexico, Switzerland and Scotland, he finds time to serve as legal counsel for the California Gas Producers Association. His venture as an independent consultant in oil, gas, and water law and public utility regulatory problems is now over a year old and looking promising. Anyhow, all work and no play would make our Hank a dull "boy." . . . New addresses this month seem to indicate changes in residence: **Charles L. Austin** to 486 Montecito Drive, Corte Madera, Calif., from Sausalito; **John R. Calhoun** from Cleveland to Mentor, Ohio (6324 Cambridge Park Drive); **William F. Mullen** to 1829 Idlewood Road, Glendale, Calif.; and lastly in New Glasgow, Nova Scotia, **Clyde F. Cameron** finds his mail in Box 517.—**Alice H. Kimball,** Secretary, 20 Everett Avenue, Winchester, Mass.

'37

Frank Tibbetts, Vice-president of Wollaston Brass and Aluminum Foundry, Wollaston, Mass., was the instructor at a recent meeting of the American Society for Metals, Springfield Chapter on "Heat Treatment of Non-ferrous Metals." . . . **Herb Shuttleworth, 2d,** President of Mohasco Industries, Inc., has been elected an overseer of the Amos Tuck School of Dartmouth College by the Board of Trustees. Herb was previously president of the Mohawk Carpet Mills, Inc., and in 1955 became president of Mohasco when Mohawk merged with Alexander Smith, Inc. . . . **Ken Gair** has been named manager of the Springfield (Mo.) Tank Plant of Trailmobile, Inc. For the past two years, Ken had been manager of the

Philip Carey Manufacturing Company plant in Plymouth Meeting, Pa. . . . **Bill Brunet** has recently been promoted to vice-president for engineering of the Strong-Scott Manufacturing Company of Minneapolis, Minn. Prior to joining Strong-Scott in 1957, Bill was chief engineer with the processing machinery division of Superior Separator Company, Hopkins, for 10 years. Earlier, he was a sales engineer at Patterson Foundry and Machinery, East Liverpool, Ohio. Bill is a board member and a member of the policy committee of the Sister Kenny Foundation. He is also a member of CORG (Citizens Organization for Responsible Government). . . . **Al Busch** has been elected to the board of directors of Laboratory for Electronics, Inc., producer of navigation and radar devices, nuclear instruments, vehicle traffic controls and medical x-ray equipment. Al is president of Keuffel and Esser Company, Hoboken, N.J.

It is with great sadness that I report that I have been informed by the Institute of the death of **Norman G. Tompkins** of Melrose, Mass., in November, 1962. Norm was manager of Daxene Graphic Arts Research of Dewey and Almy. Several patents had been issued in his name in the field of adhesives and paint technology, and he also was the author of several articles on water-base paint foundation and printing technology. Norm was married and he and his wife, Audrey, had four children.—**Robert H. Thorson,** Secretary, 506 Riverside Avenue, Medford, Mass.; Professor **S. Curtis Powell,** Assistant Secretary, Room 5-323, M.I.T., Cambridge 39, Mass.; **Jerome Salny,** Assistant Secretary, Egbert Hill, Morristown, N.J.

'38

Al Wilson is doing a fine job at getting our reunion plans under way and he deserves a lot of support. If you don't have your questionnaire completed and returned, please get at it promptly. We're looking forward to a really fine reunion. . . . A note from **Bert Grosselfinger** indicates he has had some back trouble, but an operation has helped and he has returned to his European travels again. A directory item indicates that **Edgar Taft,** M.D. Yale, 1942, is assistant professor on the staff of the Harvard Medical School. . . . **Bill Whitmore** writes: "I'm still working for Lockheed and am currently (since last March) deputy chief scientist. It continues to be a very challenging and enjoyable assignment, with a high degree of freedom of action and scope of individual initiative. I have collected a few status symbols along the way, of which the most gratifying is the Navy's Meritorious Civilian Service Citation, awarded 19 June, 1961. This was for my work as Admiral Raborn's Chief Scientist on the Fleet Ballistic Missile Program, and subsequent contributions after joining Lockheed. I also find myself in the current volume of 'Who's Who,' for reasons which remain mildly obscure to me, when I discover some of those who aren't. Finally, I have just been elected to the Cosmos Club—which is both an honor and a convenience, in view of a schedule that gets me to Washington about once a month. Incidentally, the family scored a double 'Who's Who,' since Bibba is listed in 'Who's Who of American Women.' She continues as an applied mathematician at Lockheed, and is getting involved in machine translation research. . . . The family is in good shape. All four boys are in school (the oldest a high school freshman) and all doing good work. They continue to thrive in the Bay Area environment."—**David E. Acker,** Arthur D. Little, Inc., 1424 Fourth Street, Santa Monica, Calif.

'39

For once your secretary has more news on hand than can be adequately compressed into one issue, so a portion of this year's generous Christmas card offerings and other news of '39ers will be held over until next month. . . . Welcome back to the United States! After 21 years' of overseas service in Brazil and Argentina, **Allen G. Velho,** VI-A, returned to this country in January. His temporary address is c/o Squibb International, 460 Park Avenue, New York 22, N.Y., until such time as he selects a place to live. Allen served from 1941 to 1945 as sales engineer, for General Electric S. A., in Rio de Janeiro, Brazil. From 1945 to 1946, he was manager, industrial and power equipment sales for GE in Sao Paulo, Brazil. In 1946, Allen switched to E. R. Squibb, with whom he has been ever since. His first assignment with them was as manager and vice-president, manufacturing, E. R. Squibb and Sons de Brazil S.A., Sao Paulo. Next, from 1957 to 1962, he served as general manager and vice-president, for the Argentina operation, residing in Buenos Aires. His new position with Squibb, headquartered in their New York office, will be that of director, overseas manufacturing, which embraces all of the corporation's activities in overseas manufacturing, expansion, and engineering.

Charles E. MacKinnon, XIV, has been appointed technical director of the International Salt Company. He had been manager of the company's technical service department since July, 1961, having joined the company in January, 1957, as assistant manager of that department. Charles started in 1939 with DuPont in Niagara Falls, serving in research, production, and engineering, until December, 1956, when he changed to International Salt. During his DuPont career, he had taken time out to serve as a chemical officer in North Africa and in Italy, attaining the rank of major. A registered professional engineer in the State of New York, Charles is a member of these technical societies: American Institute of Chemical Engineers, American Chemical Society, American Society of Mechanical Engineers, Institute of Food Technologists, Electrochemical Society, National Association of Corrosion Engineers, and the American Association for the Advancement of Science. The MacKinnons, with their three daughters and one son, live in Lewiston Heights, N.Y. . . . **Chester A. Williams, Jr.,** II, was recently appointed chief patent counsel of the Singer Manufacturing Company, with headquarters at 30 Rockefeller Plaza, New York 20, N.Y. In addition to his B.S. in mechanical engineering from the Institute, Chester holds an Ll.B. degree from St. Johns University Law School. He joined Singer in 1939 as a patent attorney. From 1946 to 1948 he was engaged in private practice of law, in Worcester, returning to Singer after that. He is married, with two children, and lives at RD #1, Flemington, N.J.

"Felices Pascuas y Prospero Ano Nuevo" reads a colorful card from Columbia. It's from your ex-class secretary, **Harold R. Seykota,** XV. Inside his card, Hal wrote: "We're giving you a glimpse (on the cover of Hal's specially designed card) of a very comfortable house and its lovely front porch from which we enjoy the ever-changing Caribbean view, and count our blessings. The 800 ton-per-day urea and fertilizer plant we are helping build is approximately 70 per cent complete. Hilda, Hal, Eddie, and Susan." Their address: Carrera #1, Casa 9-82, Bocagrande, Cartagena, Columbia. Incidentally, Hal's many friends ought to write him for one of those Christmas cards. Surrounding the sketch of the house and the view from the porch is a family quartet of caricatures. Not having seen the Seykota family since about 1957, I cannot vouch for the cartoonist's accuracy in capturing the likenesses of the children, but Hal's likeness is priceless! . . . Spin your world globe a good half-turn for this next one from another faithful '39er: Captain **Frederick A. F. Cooke,** XV, from Yokosuka, Japan. Fred wrote: "I'm enjoying my Navy assignment here very much. We have enough interesting construction projects in the mill to keep me jumping up and down the Islands of Japan, Okinawa, and outlying islands such as Marcus and Iwo. There our numerous dealings with various echelons of the government of Japan, their defense forces, municipal groups and private business are varied and rewarding. My primary interests are Navy facilities, real estate, and base development. We get into many facets of Japanese private and public affairs in connection with our operation of extensive military installations. I find the Japanese very nice people with whom to do business."

By a coin toss, four more letters will come your way in next month's Class News: from **Irving Peskoe, Bob Casselman, Gus Hunicke,** and **Manny Morrill.** Then I'll need more material for this running account of '39ers spread around the world, so please write.—**Oswald Stewart,** Secretary, 31 Birch Road, Darien, Conn.

'40

On December 11, 1962, your secretary was in Pittsburgh on business and intended to call **Arnold Arch,** but did not

have sufficient time to do so. I returned to Washington by plane to find a snowstorm raging. The airport limousine would not go out to my home but instead dropped me off at the Sheraton Park Hotel. There was a conference on air pollution going on in the hotel. Since Arnie is secretary of the Air Pollution Association, I decided to see if he was attending the conference, and sure enough he was. We spent a pleasant time chatting. . . . **Ray Keyes** sent his usual welcome and enjoyable greetings: "Dear Friends: The appearance of public Christmas decorations before Thanksgiving accents the efforts of the commercial community to prolong this season. We begrudge not their desire for gain, and would welcome a prolonging of the Christmas spirit, but we do not feel a longer season will do it. When Christmas carols are played and the decorations go up on Labor Day, then we shall rebel.

"Like every other western family, we visited the Seattle World's Fair. We emptied our wallets, wearied our feet, indulged in the food, attended everything that was free and even zoomed up the Space Needle. It was a beautiful panoramic view but grayed by overcast. We lost Kristin on the observation deck, only to find her later making the circuit 'twisting.' Next stop was the Olympic Peninsula where we camped a night on the shores of Lake Crescent. This beautiful blue water lake was a glacier-formed pocket, and judging from the frigid water, the glacier must have been mighty recent. The following day found us camped on the Hoh River, also ice cold but beautiful dancing white water. At dusk we hiked an hour through a section of a rain forest, a picturesque example of the ever-changing pattern of forest growth and decay. Young trees grew up on the rotting fallen hulks of an earlier vintage. Roots encircled themselves around fallen logs, and in some locations where the logs had eroded away, the trees stood as on spider legs.

"Of our children, Court, now nine, is a second year cub scout, Little League baseballer, and a fourth grader in day and Sunday school, where he has caught up with father. The latter feels that with more than six years in the fourth grade, he is just beginning to understand that a most vital subject for study is our 'self,' a most elusive subject, and a continuing and demanding one if we desire to realize our potential greatness. Tim, now eight, is a third grader and a new cub scout (Oh yes, mother joined the boy scouts too! She is his den mother). His first comment on his teacher (a man) was, 'He is better than a teacher!' Tim is busy now making sure Christmas will be a good one for him. He has bought himself a number of small nickel and dime items and has been wrapping them in paper of his own design. Santa is not going to forget him, if Tim can help it. Court and Tim embarked on a news selling venture at the County Fair this summer. Visions of vacation money danced in their heads and ours too. For the first days the temptation of the amusements not only took all the profits but also the initial change provided. It all finished with a slight gain but nothing to match the early visions. Greg, now six, is in the first grade. He is sprouting and enjoys himself free of the organizational pressures that have overtaken his brothers. He is all boy now. He no longer insists that he is going to marry Johanna, a neighboring classmate. Kristin, to be five in January, has found herself a steady playmate in Becky, a year older neighbor. Her father is proprietor of a fine local institution, 'The Wagon Wheel.' Kristin has sometimes visited there with Becky and her mother. She returns from these visitations to inform us that she spent the afternoon at the 'bar.' One might say a liberal bringing up for a child of five. Virginia, Court, and Tim are going to be the piano students this coming year.

"A rather heavy rainfall, of which you may have read in the news, proved that our house needed re-roofing. We just completed the job ourselves, and the present storm is checking our workmanship. There are no observable leaks, so that is a job done for a dozen or more years. Kitchen improvement continues and may be finished half-way to next Christmas. We have a financial program that always seems to find us short at the end of the month. It irks us, but somehow we still eat, sleep, keep warm and clothed and remain healthy."

Stan Stookey spoke on "Modern Glass —New Materials—New Uses" at a meeting of the Long Island Chapter of the American Chemical Society on November 30, 1962. . . . **Mike Biancardi** was elected president of the American Society of Safety Engineers last fall. He is manager of Safety Services of Allis Chalmers Manufacturing Company of Milwaukee. . . . Colonel **William Meany** has retired from the Army after 26 years of service. During World War II, he served as an aviation ordnance officer in the Pacific Theater of Operation and after the war received a master's degree from Harvard. His next assignment was in Austria and then he returned to the U.S. for several years. In 1959, Bill was an adviser to the Nationalist Chinese Army in Formosa, and was then reassigned to command of the San Francisco Procurement District which was his position at the time of his retirement. He was in charge of $200,000,000 worth of defense procurements in this position.

John Joseph commented on the recent death of **Johnny McGuigan** as follows: "I was sorry to read in the news notes that Johnny McGuigan passed away. I wonder if you could send me his home address so that I could write a note to his wife. He was a fellow member of Course VI-C, and I remember him well, although I only saw him occasionally since graduating. He was a very well liked fellow student. The thought struck me that in a case such as this, it would be nice to make a separate special gift to the Alumni Fund in Johnny's name. Do you know any way this could be organized so that a solicitation could be sent out to members of our class who knew him." It is suggested that those classmates who would like to make a special gift to the Alumni Fund, in Johnny's name, either mail their contributions to your secretary for forwarding to the Alumni Office, or send them directly to the Alumni Fund Office, Room 1-272, M.I.T.—**Alvin Guttag,** Secretary, Cushman, Darby and Cushman, American Security Building, Washington 5, D.C.; Dr. **Samuel A. Goldblith,** Assistant Secretary, Department of Food Technology, M.I.T., Cambridge 39, Mass.

'41

A letter has just been received from Colonel George R. Weinbrenner, '40, which reads in part as follows: "I am sorry to report the death on 30 December, 1962, of **Robert J. Meier,** '41, in Henry Ford Hospital, Detroit, Mich. Bob was a graduate of Course XV and a member of Kappa Sigma fraternity. He was founder and president of the Meier Brass and Aluminum Company of Hazel Park, Mich. He is survived by his wife Eileen and five children." You will also remember Bob as having been elected a regional vice-president of the class at our 20th Reunion, which he attended with his wife. . . . **Edward G. Sherburne, Jr.** is supervising for the American Association for the Advancement of Science the co-ordination of a program wherein 12 of the nation's leading scientific and engineering societies will co-operate in the presentation of an hour-long television program entitled, "Science and Engineering Television Journal." The program is being seen weekly on Channel 13, WNDT, New York's educational television station. Its aim is to enable scientists and engineers to view in their homes reports and discussions usually available only at professional meetings as an encouragement to the exchange of information between scientific and engineering specialties. Participating in the new project are the American Chemical Society, American Institute of Biological Sciences, American Meteorological Society, American Psychological Association, Conference Board of the Mathematical Sciences, Engineers Joint Council, American Institute of Chemical Engineers, American Institute of Electrical Engineers, American Society of Civil Engineers, American Society of Heating, Refrigeration and Air-Conditioning Engineers, American Society of Mechanical Engineers and the American Association for the Advancement of Science. The project is supported in part by a grant from the National Science Foundation.

In response to an inquiry, it appears desirable to announce here that there is an approximate two months' time lag between the time we receive news items and their publication in the '41 column of The Review. For example the class secretary has a deadline of January 15 to submit news items which will appear in the March issue of The Review. Thus, those who send in news items for publication in the column will realize that the delay in seeing their items in print is due to this production lag. . . . Please keep the news items flowing by sending them promptly to any one of the secretaries.—**Walter J. Kreske,** Secretary, 53

State Street, Boston 9, Mass.; **Henry Avery,** Assistant Secretary, 169 Mohawk Drive, Pittsburgh 28, Pa.; **Everett R. Ackerson,** Assistant Secretary, 16 Vernon Street, South Braintree 85, Mass.

'42

Fred Gander answered my request for news with a long letter, excerpts from which I now quote: "As reported (from a press release no doubt), I moved from Buffalo, N.Y., to Wilmington with DuPont this summer to a job as director of pioneering R&D for the Film Department. We have settled across the border (from Delaware) here in Kennett Square, Pa., which is in lovely rolling country, blessed with a most attractive combination of hills, streams and ponds, and many, many kinds of deciduous and evergreen trees. Nearby is famous Longwood Gardens, which I am sure has served as a stimulus to landscapers and gardeners for miles around. **Donn Barber** has more recently moved into the area from Parkersburg, W. Va. Our oldest son, F. W., Jr. (Rick) is a sophomore at the Institute, Course XIV. He has his picture in The Tech this fall for scoring the only goal in Tech's soccer victory (1-0) over the Coast Guard Academy. Our next Institute prospect is Craig (high school freshman) who is interested in electrical engineering and, based on interest in really digging into things technical, is probably a better prospect than either his father or brother. Our youngest is Carl (6th grade) and, if anything, a course XV prospect! We've got some very active programs at the shop. I've been closely associated with three activities on which DuPont has made announcements recently: a "Tedlar" PVF film plant at Buffalo, N.Y.; an oriented polyolefin film plant of Clinton, Iowa; and a sizable development plant for a high-temperature organic film based on a polyimide at Circleville, Ohio."

Harry Carter, John Reed and **Ray Wyland** from Seattle, Columbus and Los Angeles, respectively, have been appointed members of M.I.T.'s Educational Council. . . . **Jerry Coe** tells me that **Harry Knox** has been named director of manufacturing for U.S.I. Film Products. He is spending most of his time in Macedon, N.Y., with occasional trips to Tyler, Texas. . . . It also gives me pleasure to pass on the good news that **Charlie Speas** is now vice-president, Engineering & Development of the Hedwin Corporation of Baltimore. . . . I neglected to mention last month that **Bill McGuigan,** who, you remember, is concerned with planning research programs at Stanford Research Institute, is involved in medical instrumentation work there. Bill also told me that **Bob Benware** is the chief engineer for Philco's Western Development Division in Palo Alto. . . . **Monroe Sadler** has been promoted to director of materials research for DuPont. This is a new office. Monroe received his doctorate in physical chemistry from Carnegie in 1949, at which time he joined DuPont as a research chemist at the Experimental Station. He was advanced to research supervisor in 1953 and became a laboratory director in 1959. He has done fundamental research in ultrasonics and high pressure and has directed work on organic solids, refractory materials, magnetic materials and nuclear magnetic resonance.

Each month I receive a handful of address changes sent to me by the Alumni Association to help me in writing these notes. I have not reported too many of these changes so far, but can't help noting that **Douglas McConnell** has moved from Saudi Arabia to New York City. . . . For the many members of our class who are sailing enthusiasts, another note about **Dean Lewis** might not be misplaced. I quote from the January issue of 'Yachting' magazine: "Marblehead Speed Cup: At Marblehead, Mass., there is an annual competition for the fastest time for the day figures for the season. In 22 races, the Raven Class took 10 fastest times, with Dean Lewis in 'Man O'War' responsible for eight of them. He also turned in the fastest average, 6.16 knots. In races not won by Ravens, U.S. One-Designs made five fastests, as did 210s, and I boats and Stars were responsible for one each. Ravens have won the cup four out of the six years it has been in competition."—**John W. Sheetz, 3d,** Room 3-342, M.I.T., Cambridge 39, Mass.

'43

Bob Reebie was appointed to the new position of assistant vice-president, market planning and research, for the New York Central Railroad. He has assumed responsibility for interrelated functions of market research, industry planning, equipment planning and utilization, and service planning and performance. Prior to joining the Central in 1960, Bob, who lives on Holly Lane, Rye, N.Y., was associated with the management consultant firm of A. T. Kearney and Company. . . . **Walter A. Netsch, Jr.,** General Partner of Skidmore, Owings & Merrill, Chicago, was recently elected to the board of trustees at Rhode Island School of Design. Recipient of many awards in design, he is a corporate member of the A.I.A., a member of the Illinois Registration Examining Board, and of the Association of Collegiate Schools of Architecture and the University of Illinois Advisory Committee. . . . **Ed McClaud** of West Hartford, Conn., has been elected vice-president of Parker-Hartford Corporation, a company which he joined as chief engineer in 1956. . . . I received notice of a first "novel", published April 20, 1962, entitled Elizabeth Alison Scharff, authored, no less, by **Sam Scharff** and his wife Audrey. This first edition weighed in at 7 pounds 3 ounces, and its publication explains why the Scharffs moved from the big city of Tenafly, N.J., last year. . . . It is not easy to keep up with you fellows. I've discovered that **John Ward** was in Moscow and Leningrad in 1960, only because he gave a talk on his trip in October, 1962, in Belmont. He attended the First Congress of the International Federation of Automatic Control. He is with the M.I.T. Electronic Systems Laboratory, and is active in the international representation of the I.R.E., as well as the Lexington Minute Men and the New England Folk Festival Association.

I received a fine letter from **Edmund R. Swanberg** last month, who wrote that he is looking forward to our 20th Reunion, and is highly pleased with the change of venue from our 15th. By way of correcting the errors I published in a recent issue of these notes concerning Ned's residence and position, may I say that in 1962 he was elected to partnership in the firm of Scudder, Stevens & Clark, investment counsel, 320 Park Avenue, New York, and that he resides in New Canaan, Conn. . . . **Sherman Sackheim** sent me an announcement of the formation of Sherman Sackheim and Company, Inc., Advertising, at 59 East 54th Street, New York. . . . **Peter Sifneos,** who received his M.D. at Harvard, is on the faculty of Harvard Medical School as an associate in psychiatry. . . . **Allyn W. Kimball,** of Johns Hopkins, was elected a director of Associated Universities, Inc., which operates Brookhaven National Laboratory. . . . **John Harsch,** of Cheshire, Conn., was elected vice-president of the New Haven County M.I.T. Club. . . . **E. Donald Hoyt,** Manager of the lens plant of American Optical Company, Southbridge, Mass., was a recent speaker at a meeting held in Worcester, of the P.E.O. . . . I received a great many complaints during and following the last reunion in North Falmouth about the golf tournament, the sailboats and the weather. To correct things, the sports committee this time is insisting on presentation of state handicap cards or letters signed by professionals before any entries are accepted in the Reunion Open. This applies especially to **Bill Verrochi,** who used a 19 handicap and posted rounds of 69, 70, 68 and 71, and to **Iz Lenzner,** with rounds of 109 and 103, playing from scratch. The dinghies will be equipped with 400-pound lead keels this year to overcome the trouble we had with capsizing. Now about the weather, this administration has this to say about that. You pay your money and you take your chances. Between now and the reunion, write if you get work.—**Richard M. Feingold,** Secretary, 10 North Main Street, West Hartford 7, Conn.

'44

Here we are at the end of winter, and there seem to have been a number of notes piled up on my desk that should be put into The Review. I want to thank all those who have contributed, and anyone else who cares to contribute at any time will find my address at the end of the notes. . . . While having lunch at the New York M.I.T. Club, the conversation turned to **Malcolm McFaull,** XV. In answer to a postcard from me, he wrote me the following: "Briefly, I've completed 15

years of service with the Dole Corporation here in Honolulu doing project engineering work at the largest fruit cannery in the world. As of September last I was named plant engineer, which was a good break for me. My better half, Fran, and I enjoy our 7- and 14-year-old sons and 13-year-old daughter. This is a great place to raise kids. Outside of work, I've been fairly active in yachting in these parts and served as 1961 Commodore of the Waikiki Yacht Club. In general, we're leading a hell of a good life."

A clipping from "Chemical Processing" describes a cryogenic pump with liquid O_2 and N_2 escape routes blocked. The high pressure pump, successfully undergoing field tests, was developed by **Lew Tyree,** II. Once he had the idea proven, General Dynamics Liquid Carbonic Division became interested and bought the patents. Lew tells me that he is now a consultant to General Dynamics. He says that he often sees **Norm Callner,** X, who is manager of engineering for Liquid Carbonic. Maybe Lew or Norm can bring us up to date on more activities around Chicago. . . . A very nice note came from **Burt Bromfield,** II, who manages to keep up with the class very well. Burt advises that he had been meaning to write for some time, but had been rather busy. Some of the news he has had for some time, but to us it is still news. He writes: "Your pet idea is taking form with a meeting at the Institute last month to start the consolidation of both classes. (Note this was reported in last month's notes.) I met **Ralph Lamade,** II, this morning at a plant I was visiting. Ralph left A. D. Little and is currently with International Equipment Company in Needham, Mass. He is setting up a quality control system for them along with other duties. While this state of Massachusetts was in the midst of the political battles, I attended a meeting in Framingham and met Jack Breen, '47 (III), there with his wife. The four children were at home. Jack had been with the Naval Research Lab in Washington, but for the past two years has been with Raytheon doing metallurgy work. Tonight I'm going over to **Jay Martin's** (II) house. Jay and Tink recently moved to Weston from Melrose, where he was active on the planning board. Jay has been with A. D. Little since he was discharged from the Army at the end of the Korean war. Currently he is a division head in charge of Supporting Services for the entire company. Tomorrow morning **Norman Sebell,** II, our class agent, is coming over from Nashua, N.H., as he wants to go house hunting in Weston. Norm operates two plants, one in Manchester and one in Brockton, so he wants to live halfway between the two. To find a house to bed down five children is quite a project, but Norm and Ruth are determined."

A letter from Dr. **John G. Barmby,** XVI, brings the following news: "In October, I changed from the Weapons Systems Evaluation Division of the Institute for Defense Analyses to the Systems Engineeering Department of BELLCOMM, Inc. Geographically, it was only a move from the Pentagon to downtown Washington, but technically it was a shift from military to space studies. BELLCOMM, a company in the Bell Telephone System, was established last spring at the request of Mr. Webb, the head of NASA. We conduct systems studied for the Apollo (man-to-the-moon) project." Also, the September, 1962, issue of the IRE Transactions on Engineering Management carries John's article "The Applicability of PERT as a Management Tool."—**P. M. Heilman,** Secretary, 30 Ellery Lane, Westport, Conn.

'45

A most belated Happy New Year's greeting; your secretary's absence has been one of necessity, not desire—no news from you gals and guys! . . . I had lunch with **Jerry Patterson** here in New York in late September. Actually, Jerry and Lib were in town twice within two weeks. First, Jerry attended a meeting at the Lincoln Center as a representative of Binghamton's local operatic group and, later attended a meeting of the Steel Fabricators and Erectors at the Waldorf as a member of the executive committee. Yes, all the Pattersons are busy and in good health. About two weeks later I literally bumped into **Al Werner** in Grand Central. We didn't really have an opportunity to chat, but I did manage to gather that Al, Jeb, and family are still out in the Huntington area of Long Island. . . . **Oliver Selfridge** of Lincoln Lab chaired a seminar on "Unsolved Problems in Artificial Intelligence" at the Institute in mid-November. . . . While spending the Thanksgiving weekend with the in-laws in Massachusetts, I took the time and opportunity to visit President **Dave Trageser** at his shop, High Voltage Engineering in Burlington. As most of you know, Dave is promoting and developing industrial application and use of the Van de Graaff generator. It was a most enlightening hour watching Dave in action! . . . **Felipe Pescador** is one of many planning the 15th annual Fiesta in Mexico this first week in March.

Our V-12 multi-class reunion suggestion outlined in last November's Review has met with little or no comment! To date I have received only one comment. Brigg A. Lambertson, 10-'44, of Intrusion-Prepakt of Cleveland, indicates he favors such a reunion. Any more comments? . . . Burt Bromfield, 2-'44 reports that his brother, Mort, '46, spent several months in Europe last year pushing his several leather "prep" processes and patents throughout the Common Market. . . . The following letter from Class Agent and Treasurer, **Bill McKay,** was a most welcomed Christmas gift: "It's about time I 'spring' for Springer and now that Betty has placed me in front of a stack of cards, with a pen, and orders not to move for an hour, I will start by bringing you up to date. I'm sorry I missed you at the Alumni Officers' Conference in September. We moved into a new home the middle of August, and it was quite a struggle getting settled. The builder almost finished it in time, but we had to move and were surrounded by painters and paper hangers for a few weeks! We had a wonderful week with **Max** and Trudy **Ruehrmund** last July. They came to Boston and spent a day at Tech. Max showed Trudy our old room 103-A at the Grad House where all the late liberty hounds used to crawl through our window. They then spent a few days at the Cape and visited all the tourist traps. We had dinner one night at the Christopher Ryder House in Chatham. Trudy brought down the house by getting up—after much urging—and singing many beautiful old favorites. She is a terrific singer and she must have a spot on our 20th Reunion program. She could easily be a real professional if Max didn't keep her scrubbing floors all week! Max is still with General Foods in Hoboken, N.J.

"We see **Jim Gurney** at Craigville Beach every summer. Jim is a Sailfish sailor as are my two sons, Bill and David. Bill, Jr. won his first race this summer. In fact, we just challenged the **Hickeys** to a race—remembering **Pete's** spree on his new boat at our 15th! I see **Bill Meade** every so often; he is back in Boston for Stone & Webster after spending considerable time in Los Angeles. Oh, yes, another hot item—we are expecting our fourth child in the spring—after 10 years!" Many thanks for your letter, Bill.

Each March we report on our Christmas correspondents, so here we go. **George H. Bickford** of Syracuse reports: "Since no news is not good news to you, I am building a Comet this winter, teaching evenings at Syracuse University, and looking for snow." George continues at Carrier Corporation and judging from his snow comment we suspect he may well be still ski patrolling it! . . . Jimmie and **Tom Stephenson** are back at ALCOA headquarters in Pittsburgh. Ann Bowman reports that she and Professor Ned, '46, hope that the world situation will permit them to complete a six weeks' teaching assignment in India this summer. We can report that Dianne, Lynn, and young Vinnie have their mother Bobbie's beauty, not Vince's scowl. While on the subject of beauty we should comment on Pete and Lou Hickey's family. It is probably sufficient to say that Lisa is already bringing grey hairs to Pete's retreating forehead! . . . **Nick Mumford** indicates that his textbook has, at long last, reached the galley proof stage. . . . In the non-academic field **Chick Street** indicates that his Volkswagen sales continue to rise. . . . Landlocked **Jerry Patterson** must yearn for the seas or the Navy if his nautical card is at all indicative! . . . Although we have no particular news it is safe to report that greetings were also received from, among others, Margie and Arthur Schwartz, '47, of Los Angeles, Dodi and John Rudolf, '48, Billie and Al Bowen, '48, Pat and Bill Grant, '48, Walt and Jill Kisluk, '47, Louise and **Buzz Busby,** '45, Al and Joan Porson, 10-'44, Dottie and Richie Potter, '47, Norma and **Bud Hetrick,** '45, Elaine and **Bill Shuman,** '45, and Gloria and Ralph Evans, '47. . . . If you want to know of the whereabouts of any classmate drop us a line for our records are now up-to-date!—**C. H. Springer,** Secre-

tary, Firemen's Mutual Insurance Company, 420 Lexington Avenue, New York 17, N.Y.

'46

We have been blessed with a few responses to our plea for news in December. These notes are typed two months before they are published, so I don't know whether my January and February pleas have been heard. If you have dropped me a line, thanks very much, and you should see the results soon. If you haven't, it is still not too late to do so for this year's editions. Your secretary would be most grateful for any crumbs of news you can spare. I am most indebted to Bob Nelson, Louis Wadel, Bob Loomis and Roger Sonnabend for their response to my December pleas, and with their indulgence I shall plagiarize from their letters. **Bob Nelson** added some notes to his Christmas card. The Nelsons now have four children, two boys and two girls. The latest, Tommy, is less than a year old. Their reproduction proclivity has forced an addition to their home at South Main Street, Sherborn, Mass. Bob has recently successfully passed the Massachusetts registered professional engineer exams. He is with Raytheon, working as a system engineer on surveillance radars, and is active in town affairs, presently serving as PTA president. Bob is a lieutenant commander in the Naval Reserve. Bob reports that **Dave Hoag,** who is head man at M.I.T. on Apollo guidance, has made a large hit with all the children within miles around as a result of having collected a full set of astronaut signatures.

Louis and Carol **Wadel,** and daughters Nancy and Cathy, write from their home at 3546 Caruth Blvd., Dallas 25, Texas. Louis returned to Dallas in 1948 and until this year was engaged in computer, guidance and control work on missiles and aircraft at Chance Vought Corporation and Texas Instruments, Inc. Last October he became associated with Electronic Data Systems Corporation, Dallas, as director of Applied Science. They do computer application consulting and programming, both engineering and commercial, and rent small and large computers on an hourly basis. Lou's principal professional society activities consist of serving as chairman of the Dallas Section, Institute of Radio Engineers, and also as national chairman of the Institute of the Radio Engineers' professional group on automatic control. . . . **Bob Loomis** reports that he and his brother **Ray** are partners in Loomis and Loomis, Consulting Professional Engineers, in Windsor, Conn. Their main business is doing structural engineering and building foundations, working with architectural firms in the Hartford-Springfield area. Bob is a registered professional engineer in Connecticut, Massachusetts, and New York and has National Council certification. He is active in the American Society of Civil Engineers, the American Concrete Institute, the Boston Society of Civil Engineers, the Building Officials Conference of America, National Fire Protection Association, and various professional and consulting engineers groups. Bob, Rilla Louise, their two sons and two daughters live at Mountain Road, East Granby, Granby P.O., Conn. He is chairman of the East Granby Industrial Development Commission, and served as 1959-60 chairman of the East Granby Building Code Study Committee. The code they wrote was adopted by the town. Bob is now on the East Granby Board of Finance, is a representative from his town to the Capital Region Planning Agency, and is also in the Republican town committee. If all that isn't enough, he is also secretary and a director of the Windsor Federal Savings and Loan Association, as well as a member of the M.I.T. Educational Council. Bob reports that two of his best undergraduate friends, **Joe Cincotta** and Bill Little, '47, have not been heard from in a long while and he would appreciate some news of them. Glad that you asked. Happy to be of service. Joe is treasurer of DiMinico and Cincotta, Inc., Malden, Mass., and Bill is president of Little Construction Company, Charlotte, N.C. No charge for the service. I would appreciate a carbon of Joe's and Bill's note to Bob.

As previously reported in these notes **Roger** and Elsa **Sonnabend** have four children, three girls and one boy. Rog is president of the Hotel and Motor Hotel Divisions of Hotel Corporation of America. His divisions continue to expand rapidly and in 1963 they will open fine new hotels in Hartford and Houston and a deluxe motor hotel in Cambridge, a stone's throw from M.I.T. This latter, to be called Charter House Hotel, will have some 200 rooms, elaborate meeting and restaurant facilities, swimming pool, etc., and will be 10 stories high overlooking M.I.T., Science Park and the Charles River. It will be operated by the Motor Hotel Division which is headed by **Jim Craig.** This new Charter House will be the 18th property operated by the division. In addition to managing his far flung empire, Roger has some rather wide outside interests. He was 1961 President of the Young President's' Organization. He is trustee of Radcliffe College, member of the Board and Executive Committee of the National Training Laboratories, a division of the National Education Association specializing in work in the behavioral sciences; chairman of the Committee on Continuing Education at the Harvard Business School Alumni Association; member of the Board of Advisors of the Harvard-Radcliffe Program in Business Administration; and member of the Board of Boston University Human Relations Center. Recently Roger spoke at an international business conference in Buenos Aires, sponsored by the Pan American Council of Comité International de l'Organisation Scientifique, on "Experiences, Methods and Opportunities in the Education of Top Managers of Government and Private Enterprise." He has also had "Ethical Dilemmas of Business" published in "Challenge," an economic publication of New York University and was a member of the panel on ethics that was featured in the November issue of "Playboy" magazine. . . . Thanks very much for the above reported communications. They have been very interesting to me and, I hope, to our readers. Again I repeat my plea for a post card or a half a page of information on yourself.—**John A. Maynard,** Secretary, 25 Pheasant Lane, North Oaks, St. Paul 10, Minn.

'48

Inertial guidance is the business of Lieutenant Colonel **Thomas K. Oliver** of Williamsburg, Mass., who is the commander of the Guidance and Control Division of the Air Force Missile Development Center. Under the Colonel's planning and direction, the division played an appreciable part in the successful launching of the first Minuteman missile from Cape Canaveral, Fla. . . . Congratulations are extended to the following: **Herbert S. Kindler,** who was appointed director of the Instrument Society of America. He is listed in "Leaders in American Science" and is author of "Organizing the Technical Conference." Also to **George E. Clifford, Jr.,** who is the president and chief executive officer of the newly organized science firm of Cryonetics Corporation. . . . Dr. **Gordon Hearn** of Portland State College was principal speaker at the Central Oregon Mental Health Association recently. . . . Mr. **George Macomber** of Concord, Mass., and his wife returned home after a trip to Moscow, where they were when President Kennedy announced the Cuba quarantine. The four-day pleasure trip was made after attending a conference of the Young Presidents' Organization in Switzerland. He said he was glad he went, but glad to be back! . . . Correction, please: **John R. Lamarsh** was appointed Associate Professor of the College of Engineering of New York University where he is in charge of the nuclear engineering program. It was erroneously reported that his appointment was at Cornell University. . . . Word has been received that **Hans H. Bernhardt** of Delanco, N.J., died in September, 1962. Our deepest sympathy to Mrs. Bernhardt and the family.—**Richard H. Harris,** Secretary, 26 South Street, Grafton, Mass.; **Harry G. Jones,** Assistant Secretary, 1 Horizon Road, Apt. 1215, Palisade Section, Fort Lee, N.J.; **Herbert S. Kindler,** Assistant Secretary, 128 Elatan Drive, Pittsburgh, Pa.; **Robert R. Mott,** Assistant Secretary, Box 113, Hebron, Maine.

'49

The inevitable has happened. After 10 months of commuting between Cambridge, Mass., and London, I am now a resident of London, awaiting only the arrival of my wife, Sonja, and our two children, Corky, 11 and Chris, 8, and one of our two brown standard poodles, Hollywhite Gay Abandon, for a resumption of some semblance of normal domesticity, even if in a strange and wondrously different environment. One problem of continuing as class secretary under these

conditions is the high probability of the Hulswit saga pre-empting space from more deserving but remote-from-secretary classmates. However, with your indulgence I shall endeavor to adopt a self-effacing attitude (at least in print) and carry on. If you are dissatisfied, the 15th Reunion, a year from June, provides the first opportunity to strike back by means other than letterwriting. Based on your past performance, I have nothing to fear until then.

I am sorry to report the death of another classmate, **Thomas W. Martin, Jr.,** XVI, whose last address was the M.I.T. Naval Supersonic Laboratory. He died on November 28. As I am now writing these notes in mid-Atlantic, I have no additional information but will try to make a fuller report next month.

Three of our classmates have managed (in only 13 years) to put the secretary on their Christmas mailing list, thereby providing a brief summary of their current whereabouts and activities. . . . From **Dean Humphrey** (and Nancy, Neil and John) came a brief note that about a year ago they cancelled plans for living forever in Massachusetts and joined Sharples Corporation (R & D). Their present address is 112 Sunset Drive, Lansdale, Pa. . . . Audrey and **Archie Harris** (joined by Ven and Diane) send greetings from California. Many of you will not be surprised to hear that they "love it here" and will be pleased to know that "Arch's position has worked out beautifully."

Jack Fogarty (and Peggy, Eric and Barbara) have supplied a Christmas letter which it breaks my heart to edit. Herewith, the residue of my unwilling shears: "Jack has had a couple of title changes and is now engineering manager of the Data Communications Section at the Philadelphia Univac Engineering Center. We all spent a week's vacation at the Back Log Camp on Indian Lake in the Adirondacks and had a marvelous time. The camp is run by the Cadbury and Brown families and has a delightfully solicitous but completely unoverbearing religious and family atmosphere. It is accessible only by motor launch or a one-and-a-half mile trail hike. We slept on cots in a platform tent which made you feel outdoors yet completely protected. Each tent had its own backlog fire and its own pump; delicious meals were provided in a common dining tent three times a day. Swimming and canoes were available whenever desired. Eric caught his first fish off the dock and our eardrums are still ringing from his shriek of delight. We only tried a couple of their organized hiking and canoe trips since most were too strenuous for the children, but we took short trips of this type on our own instead. Peggy, especially, got a more complete rest than on any previous vacation.

"Our community activities remain the same. Jack was re-elected treasurer of the Erdenheim Civic Association and Peggy does publicity for the local library; we are active members of the Chestnut Hill Friends Meeting. . . . In closing let us hope that despite the uneasy world situation, some of the peace and joy of the Christmas season will be yours throughout the coming year." . . . Next month, my London address, which is not confirmed yet.—**Frank T. Hulswit,** Secretary, 35 Acorn Park, Cambridge 35, Mass.

'50

Bill Enders was appointed manager, marketing, RCA Laboratories, Princeton, N.J. Bill has been transferred to the David Sarnoff Research Center from RCA Defense Electronic Products, Burlington, Mass.; he will supervise and co-ordinate market research, market development and government contract negotiations at RCA Laboratories. . . . Establishment of a consulting practice in vacuum science and technology was announced today by **John Simons.** Fields of special interest will be ultrahigh vacuum, space environmental simulation, instrumentation and gauge calibration. John recently resigned from National Research Corporation, Cambridge, where for nearly seven years he has been a key figure in major vacuum developments. These include development of the first large metal ultrahigh vacuum chamber, the first high-power differentially-pumped electron beam source for vacuum metallurgy, and the first system for accurate calibration of vacuum gauges at pressures below 10^{-5} Torr. He established the NRC Space Vacuum Laboratory, which provides testing services, and he served as its first director. For the past year at National Research he has been manager of the XHV project, a team effort to develop an extreme high vacuum facility. Completed several months ago, this facility has reportedly achieved pressures in the 10^{-15} Torr. range and is considered the first chamber of useful working size to reach pressures lower than those encountered in interplanetary space. As a consultant to National Research, John will continue his association with the XHV program. With his wife and three children, John resides in Weston, Mass. His "relaxing time" is devoted to serving as cubmaster for 60 Weston Cub Scouts. John's address is: Dr. John C. Simons, Jr., 206 Conant Road, Weston 93, Mass.

Here are some changes of address you might want to jot down: **Ralph E. Wolfe,** Apt. 108, 1477 Beacon Street, Brookline 46, Mass.; **Edward B. Berninger,** 29 Crescent Road, Riverside, Conn.; **William A. Black, Jr.,** 301 Cleveland Avenue SW, Canton, Ohio; **Robert J. Cantwell,** 28338 Palos Verdes Drive E., Rolling Hills, Calif.; **William R. Dagnall, Jr.,** Knollwood Road, Glen Farms, Newark, Del.; **Raymond V. Dyba,** 2203 Foote Road, Fairfax, Wilmington, Del.; **Joseph D. Fleming, Jr.,** W7-163, 75 Cambridge Parkway, Cambridge 42, Mass.; **Rowland M. Garratt,** 2540 N. E. 106th Place, Seattle, Wash.; **Robert V. Garvin,** 4415 Paddock Hills Drive, Cincinnati 29, Ohio; **Walter R. Gerich,** Box 5, Route #5, Annapolis, Md.; Mrs. **Sonja K. Gross,** 35 Knollwood Drive, Waltham 54, Mass.; Dr. **T. Marshall Hahn, Jr.,** Virginia Polytechnic Institute, Blacksburg, Va.; **Richard S. Holmgren, Jr.,** c/o Permanent Secretary, Ministry of Home Affairs, PO Box 467, Kingston, Jamaica, W.I.; Professor **Paul J. Kellogg,** 122 Arthur Avenue, SE, Minneapolis 14, Minn.; **Anthony G. Kelly,** 5 Bamboo Avenue, Kingston, Jamaica, W.I.; **Bernard W. Levinger,** 3061 Scarborough Road, Cleveland Heights 18, Ohio; **Clifford Morton,** 9793 Stoney Creek Lane, Cleveland 30, Ohio; **Harlan D. Pickering,** 6 West Rosemont Avenue, Alexandria, Va.; **Albert J. Romano,** 5359 Anaheim Road, Long Beach 15, Calif.; Dr. **Edward R. Stover,** 410 Robinson Street, Schenectady 4, N.Y.; Captain **Joseph E. Volonte,** 4914 Yorktown Boulevard, Arlington 7, Va.; **David J. Williams,** 2921 Juanita Place, Fullerton, Calif.; **Robert E. Wohler,** 25 Berwick Place, Norwood, Mass.—**Gabriel N. Stilian,** Secretary, American Management Association, 1515 Broadway, New York 36, N.Y.

'56

This article is largely due to two classmates, **Ed Johnson** and **Ted Korelitz,** who responded to my request for information in the January article. . . . Captain **Mort Cohan** is reported to be working on radiochemical medical research at the Army Nuclear Labs. . . . **Bernie Haas** is a technical sales representative for the Oronite division of Standard Oil of California. Bernie formerly had the New England sales territory. . . . **Jim Kellard** has been with M. W. Kellogg, engineering and construction firm. . . . **Dick Kinney** is a sales engineer with the Liquid Carbonic Division of General Dynamics in the Boston area. . . . **Al Klibanoff** is a project engineer at National Research Corporation in Cambridge. . . . **Ted** and Diane **Korelitz** have a second daughter, Ellen Sue, born on December 30, 1959. Ted is with the Badger Company in Cambridge, where he uses a computer to design chemical plants and equipment. . . . **Frank Sarno** was last seen in the New York area with Burns and Roe, where he works as a steam and power engineer.

Fred Bialek has been appointed manager of Fairchild Semiconductor's diode plant in San Raphael, Calif. Fred and Constance have a daughter, Sydney. . . . **Tom Cleaver** is back in Cambridge working on his masters' degree in East Asian affairs at Harvard and eventually hopes to work for a firm in Japan. . . . **Ken Dunipace** was engaged to Ann Jones of Waban, Mass., in January. . . . **Angelo Perciballi** is with the aerophysics department of Raytheon, but during the Cuban crisis he spent a month on active duty in the Air Force. . . . **Ed Johnson** writes that he is in a surgical residency in Atlanta after graduating from the University of Pennsylvania Medical School. He and Pat (Venable) have two boys. Class visitors in Atlanta are invited to stop by. A fellow Penn med school grad, **Bill Calvert,** is now in the Air Force after one year of internal medicine residency.—**Bruce B. Bredehoft,** Secretary, 1094 Center Street, Newton Center 59, Mass.

'57

Here is some more of the news that I gathered from classmates in the Boston area who turned out for the cocktail party held in December. **Bob Palter,** who received his M.B.A. from the Harvard Business School in 1960, noted that he is now sales and production manager for the Pilgrim Products Division of Webster Industries, Inc., in Salem, Mass. The company manufactures polyethylene in film extrusions. . . . **Alex Bernhard** is now in his second year at the Harvard Law School. He will be competing this semester in the quarter-finals of the Ames moot court competition. On a part time basis Alex works for a Boston law firm in admiralty law and, in addition, for Uncle Sam as a naval officer. . . . One of the area's most eligible bachelors, **Don Aucamp,** arrived at the party with an attractive German girl on his arm. Don informed me that he received his S.B. in Course VIII in 1962 and at present is working as a research consultant in systems analysis (communications) and finishing his thesis for M.S. degrees in courses VI and XV. . . . After one year on the civil engineering staff at N.Y.U., roughly four years as an engineer for Bethlehem Steel, and a year in Sweden on a government fellowship, **Harris Hyman** is now working as an independent consultant on computer usage systems. Harris is married to the former Trina Schart of Philadelphia. . . . **Paul Nicholson** is manager of the Re-entry Systems Department of Raytheon's Missile and Space Division. Paul received his A.M. in physics from Boston University and is now studying for a doctorate. From Paul's wife (Virginia Fremer, Queens College, '58), I learned that the Nicholson's have three children ranging in age from one month to three and one half years.

Marty Forsberg is still working at M.I.T.'s Instrumentation Laboratory on materials problems associated with inertial guidance systems. . . . **Jim Cunningham,** who came with his wife, E. J. (Edna Joyce Janowski, Wellesley, '59), reported that he stayed at Tech to get an S.M. in electrical engineering and is now finishing his work for an Sc.D. in the same course. Jim's plans for the future are uncertain; he said he would like to get a good job in Europe. . . . **Don Norman** and **Bob Root** are both at Harvard University. Don is a N.S.F. postdoctoral fellow at the Center for Cognitive Studies. He received his Ph.D. in mathematical psychology from the University of Pennsylvania. His wife, the former **Marty Karpati,** is finishing the experimental work on her dissertation in organic chemistry at the University of Pennsylvania, Bob, who married the former Georgiana Evans, is in the Graduate School of Education. Before returning to this area he taught for three years at the Nichols School (Country Day) in Buffalo, N.Y. The Roots have one child, a boy aged one. . . . After picking up his master's degree at Tech, **Mike Schneider** reported he transferred to Harvard for a Ph.D. in engineering. At present he is at Lincoln Lab. . . . There are a few more items on Boston area classmates that I'll clean up next month. In addition, I'll report on a letter I received from **Tom Ahrens.** The well is running dry; please forward some newsy letters.—**Frederick L. Morefield,** Secretary, 17 Everett Street, Cambridge, Mass.

'58

This column is short since most of our efforts have been placed on the reunion program. The reunion is being held June 8 and 9 at the new Charter House Motor Inn on the Cambridge side of the Science Museum basin. We selected Boston as the site so that you would have opportunity to revisit old haunts as well as the Institute. Alumni Day is the Monday, June 10, following reunion and most of us plan to attend. The Institute will be open and some topnotch programs are going to be presented. . . . **Ken Auer** dropped in at my home last week while on his new job assignment; he is doing what I call technical marketing research (but any good engineer would call it product development). Ken, Mary and their two daughters will soon move into their new house, presently under construction. . . . **Steve Dorsey** writes from Toronto, Canada, that he's in business for himself and living it up in a bachelor apartment. If in Toronto, stop in. . . . **Bob Slott** got his Ph.D. in chemical engineering, thesis completed and accepted a posh job in California. He's out there now with wife Susie and twin daughters. However, he'll return in June to graduate and attend reunion.

When last heard from, the **Paul Busch** family was expecting about New Year's time. We hope he got his tax deduction. . . . **Paul Knopf** received his Ph.D. in biophysics and will continue research in the life sciences at University of Cambridge where he's working under Dr. Francis H. Crick, one of the 1962 Nobel prize winners in medicine. . . . **James Kennedy** has been promoted to captain in the Army and is stationed in Orleans, France. . . . I heard from **Hillel Auerbach,** who has been through Yale Law School and is now a practicing tax attorney in New York.—**Cornelius Peterson,** Secretary, 4 Rambling Brook Road, Upper Saddle River, N.J.; **Antonia D. Schuman,** Western Associate, 22400 Napa St., Canoga Park, Calif.; **Kenneth J. Auer,** Midwestern Associate, 12955 Harlon Avenue, Lakewood, Ohio; **William G. Daly, Jr.,** 10 Angier Road, Lexington, Mass.

'59

When our class was graduated almost four years ago, there were close to 700 degrees awarded. The way the members of the class of '59 have been writing to their class secretary, however, suggests that there could not have been more than 50 in our graduating class. Come now, my new address cannot be that hard to remember. I expect news from everyone in the next few weeks. . . . I attended the M.I.T. Club of Washington's annual student luncheon last month. Over 100 prospective M.I.T. students from local high schools were present. I hope '59ers will take an active part in these events at all of the M.I.T. Clubs. . . . I hope everyone realizes that we are already approaching our first major anniversary and class reunion. The wheels are starting to turn, and next year we will hold our fifth year reunion. You will be hearing more about this event in the months ahead. . . . Oh yes, I am happy to report that young Ziggy **Zeiders** looks a lot more like Suzi than **Glenn.** Hoping to hear from you all soon.—**Robert A. Muh,** Secretary, M-424 Arlington Towers, Arlington 9, Va.

'60

Hopefully, the amount of news that has reached me recently is no indication of the overall state of activity of the class. Fortunately, however, enough information has come through from various sources to justify at least a short column. I had a note from **Barry Karger** who, since graduation, has been studying for a Ph.D. in analytical chemistry at Cornell University. Barry was awarded a Corning Glass Works Fellowship for this year and hopes to complete his studies next fall. He was married in August of 1961 to the former Gretchen Wernick of Newton, Mass. . . . Other news along the latter line—**Alan Helgesson** was married recently to the former Llyssa Hudgins of Boston, and **Steve Shu-Kwan Chan** and the former Diana Frances Fong of Brazil were married in November. . . . A notice received from Carleton University indicates that **John Moore** has been appointed assistant professor there in the Department of Geology. Since receiving his Ph.D. from Tech, John has been at Carleton as a postdoctoral fellow. . . . **Robert DeHaas** recently joined the Research and Development Division of DuPont's Plastics Department at the Experimental Station near Wilmington. Prior to his new position, he received an S.M. in chemical engineering from Purdue University. . . . **Niels B. Andersen** (First Lieutenant) was assigned to Yokota AB, Japan, following his graduation from flying training course for B-50 pilots at Tinker AFB, Okla. He completed his S.M. degree at Stanford University before entering the Air Force. . . . That's all for now. Why don't the rest of you take just a minute to drop me a line?—**John B. Stevenson,** Secretary, 106 Ellery Street, Cambridge 38, Mass.

'62

Alan Carlson was married to Sandra Beaton last September. . . . **Peter Maas,** VIII, is working for Lockheed in California. . . . **Rurik Halaby,** I, is at M.I.T. . . . **Stephen Hall,** XV, is studying in Africa with an M.I.T. fellowship. . . .

John Macan, XIII-A, is a lieutenant in the Navy and is stationed in San Francisco. . . . **Tony Mack,** X, is at the M.I.T. Chemical Engineering Practice School. . . . **Arthur Harper,** XV, is a management trainee for the New York Telephone Company. . . . **Curtis Hartwig,** VI-A, is a teaching assistant at M.I.T. . . . **Francis Maher,** XII, is at M.I.T. . . . **Stanley Marcus,** VI, is working for the Baird Atomic Company in Cambridge. . . . **Thomas Mawtei,** VI, is at Stanford. . . . **Jon Heuss,** X, is at the University of California. . . . **Sheldon Hoffman,** II, is in the General Electric Manufacturing Training Program. . . . **Martin Homburger,** XV, was engaged last September to Judi Friedman of Lesley College and is now at M.I.T. . . . **Harold Metcalf,** VIII, is at Brown University as a teaching assistant. . . . **George Meyers,** VI, is working at the Western Electric Company in Laureldale, Pa., until he enters the Air Force in May. . . . **Joseph Horowitz,** XVIII, is at the University of Michigan with an NSF Fellowship. . . . **Joshua Howell,** VI, is in grad school at Columbia University. . . . **H. R. Howland,** VI, is at the University of Pennsylvania Moore School of Electrical Engineering. . . . **William Mihaltse,** VI, is at M.I.T. grad school.

Richard Millman, VI, is studying at Columbia University. . . . **Dushan Mitrovich,** XVIII, is at Harvard in the Department of Applied Mathematics. . . . **Lawrence Salba** is working for the U.S. Naval Ordnance Laboratory. . . . **John Savage,** VI-A, is a research assistant at M.I.T. . . . **Hooshang Sayf,** I, is at M.I.T. . . . **Phil Schmidt,** XVI, is working for the Bell Helicopter Company as an aerodynamicist. . . . **Cloyd Smith** completed the officer orientation course at Fort Belvoir, Va. . . . **Roger Mo,** VI, is at Northeastern. . . . **Don Moehrke,** XV, has a teaching assistantship in accounting at M.I.T. . . . **Roger Sellew,** XV, is working for Monsanto Chemical Company in St. Louis. . . . **Hugh Mullen,** XV, is working for Northern Radio Company in New York City. . . . **Paul Munafo,** II, is working for Boeing in Seattle. . . . **Jim Sethares,** VI, is at the Air Force Cambridge Research Labs. . . . **Ed Schneider,** X, now at the Goodyear Tire and Rubber Company, plans to get his M.S. at night.

Theodore Sheskin, VI, is working for IBM as a components test engineer. . . . **Charles Muntz,** XVIII, is working in the Apollo Group at the M.I.T. Instrumentation Lab. . . . **Marco Murray,** VI, is at M.I.T. working for his Sc.D. . . . **Hyunkook Shin,** X, has a teaching assistantship in the M.I.T. Chemical Engineering Department. . . . **Pete Shrier,** XXI-B, is at the University of Vermont School of Medicine. . . . **Harold Shukovsky,** III-B, is at Harvard. . . . **Edward Myskowski,** X, is at Boston University. . . . **R. S. Fabry,** VI, is at M.I.T. with a teaching assistantship. . . . **Ed Feinberg,** XVI, is at New York University. . . . **Barry Fidelman** is at Harvard. . . . **Edwin Abrams** had an article published in the November, 1962, issue of "The Realtor" entitled "A Case for Planner-Realtor Teamwork."—**Gerald L. Katell,** Secretary, 3771 Redwood Circle, Palo Alto, Calif.

YOUR FRIENDS



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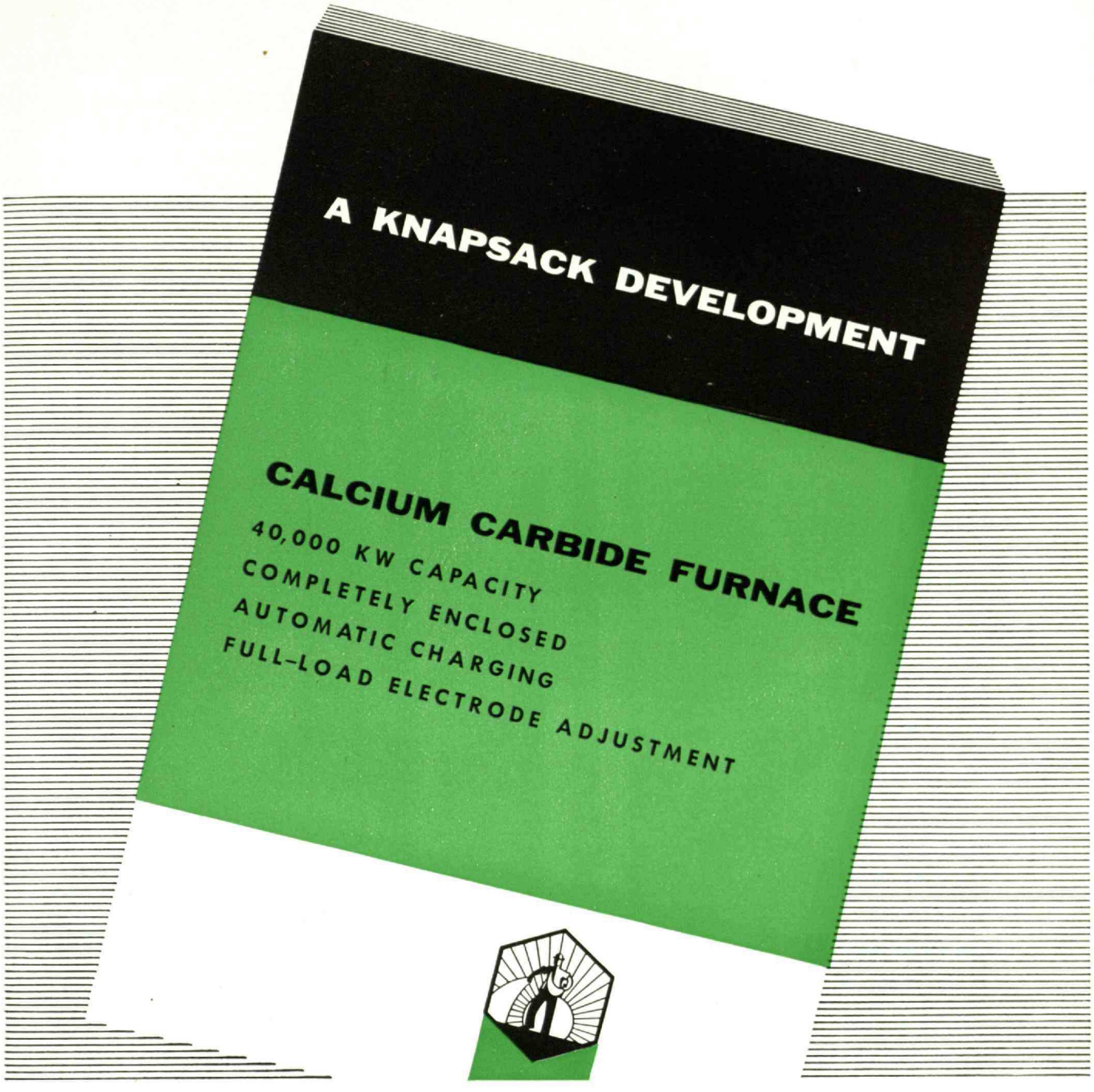
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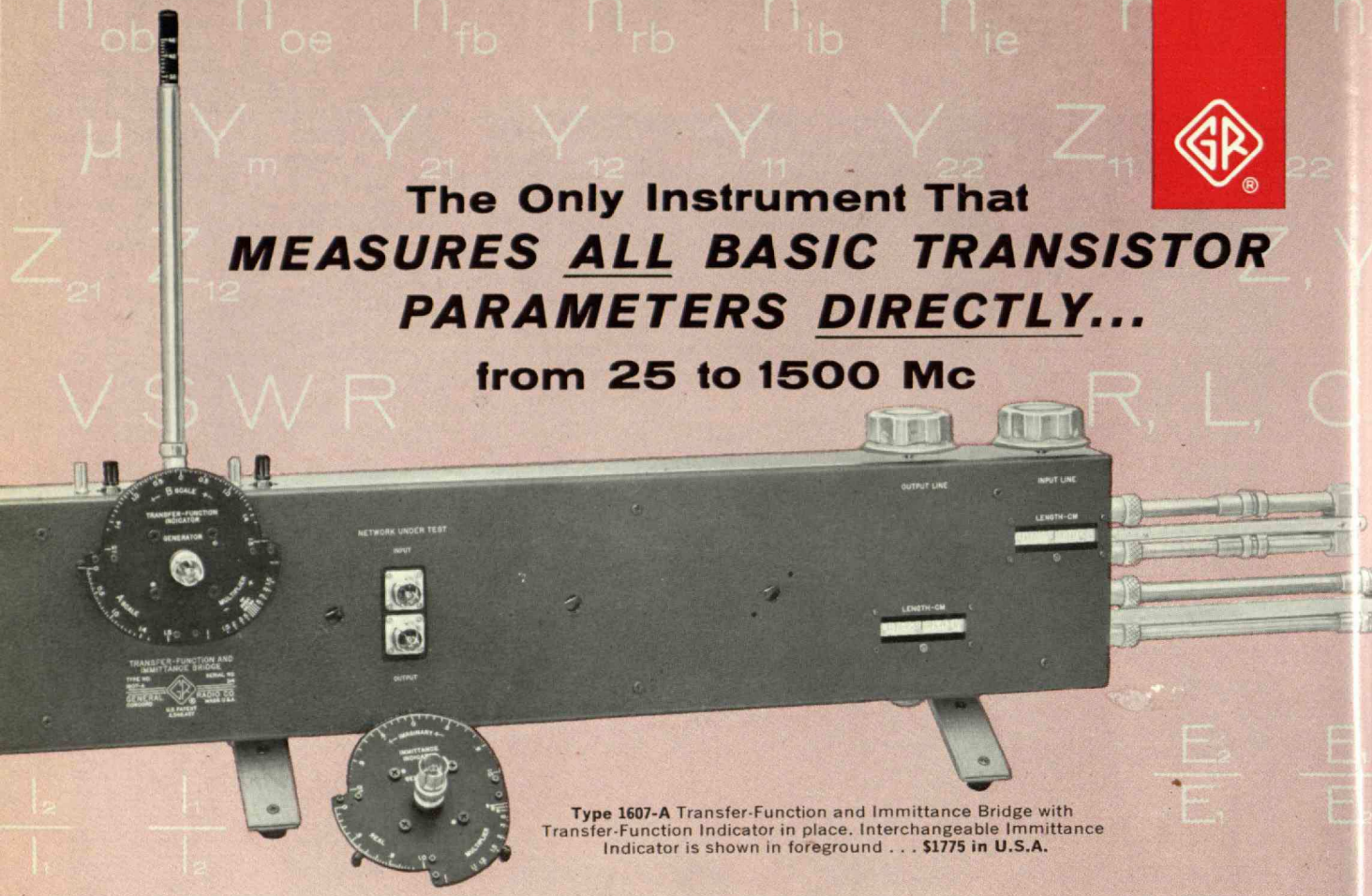
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